NAVSHIPS 0967-476-1010

# PRELIMINARY TECHNICAL MANUAL

FOR

# PRINTER TT-649/UY

DEPARTMENT OF THE NAVY
NAVAL SHIP SYSTEMS COMMAND

NAVSHIPS 0967-476-1010

PRELIMINARY
TECHNICAL MANUAL

FOR

# PRINTER TT-649/UY

DEPARTMENT OF THE NAVY
NAVAL SHIP SYSTEMS COMMAND

APPROVED

LIST OF EFFECTIVE PAGES

| PAGE NUMBERS | CHANGE IN EFFECT | PAGE NUMBERS | CHANGE IN EFFECT |
|---|---|---|---|
| Title Page | Original | 3-1 to 3-9 | Original |
| ii to vii | Original | 4-1 to 4-17 | Original |
| 1-0 to 1-7 | Original | 5-1 to 5-10 | Original |
| 2-1 to 2-4 | Original | 6-1 to 6-11 | Original |

Litton Systems, Inc.
Datalog Division
13137 Ventura Boulevard
Studio City, California 91604

N00024-69-0283

Errors found in this publication (other than obvious typographical errors), which have not been corrected by changes should be reported. Such report should include the complete title of the publication and the publication number; identify the page and the line or figure and location of the error; and be forwarded to the Electronics Publications Section of the NAVAL SHIPS SYSTEMS COMMAND.

All Navy requests for NAVSHIPS electronics publications listed in the current issue of NAVSUP Publication 2002 "Requisitioning Guide and Index of Forms and Publications", Cognizance Symbol I, or in a subsequent issue of the Electronics Information Bulletin should be directed to the appropriate Forms and Publications Supply Point.

ERRATA SHEET

FOR

PRELIMINARY TECHNICAL MANUAL

PRINTER TT-649/UY

Appendix A (Supplemental Drawings) when appended to publication NAVSHIPS 0967-476-1010 provides the additional technical data required to document conversion of Teleprinter TT-649/UY to model TT-675/T. Teleprinter Model TT-675/T is furnished under contract No. F30602-70-C-0091 by Bunker Ramo Corporation, Electronic Systems Division, (31717 La Tienda Drive, Westlake Village, California 91361) as Bunker Ramo Part No. 4902240.

## VALIDATION PERFORMANCE

Title of Publication: Printer TT-649/UY

NAVSHIPS Number 0967-476-1010

Contractor: Litton Systems Inc.
Datalog Division
13137 Ventura Boulevard
Studio City, California 91604

Sub-Contractor (if performing validation):

Contract No.(s) and Purchase Orders, if applicable: N00024-69-C-0283

| Chapter | Section | Paragraph | Date Validation Completed | Check here if not validated |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Name & Authority of Validating Officer:

Signature of Validating Officer:

## TABLE OF CONTENTS


| Paragraph | Title | Page |
|---|---|---|
| | SECTION 1 – GENERAL INFORMATION | |
| 1-1 | Scope | 1-1 |
| 1-2 | General Description | 1-1 |
| 1-3 | Reference Data | 1-1 |
| 1-4 | Physical and Functional Description | 1-1 |
| 1-5 | Equipment Supplied | 1-6 |
| 1-6 | Equipment and Publications Required But Not Supplied | 1-6 |
| 1-7 | Consumables Required for Operation | 1-6 |
| | SECTION 2 – INSTALLATION | |
| 2-1 | Site Selection | 2-1 |
| 2-2 | Installation | 2-1 |
| 2-3 | Preliminary Installation Inspection and Adjustment | 2-1 |
| | SECTION 3 – OPERATION | |
| 3-1 | Functional Operation | 3-1 |
| 3-2 | Preparation For Use | 3-1 |
| 3-3 | Operating Procedure | 3-1 |
| 3-4 | Operator's Maintenance | 3-6 |
| | SECTION 4 – TROUBLESHOOTING | |
| 4-1 | General | 4-1 |
| 4-2 | Detailed Functional Description | 4-1 |
| 4-3 | Troubleshooting the Medium Speed Printer | 4-10 |
| | SECTION 5 – MAINTENANCE | |
| 5-1 | Failure and Performance Reports | 5-1 |
| 5-2 | Preventive Maintenance | 5-1 |
| 5-3 | Printer Inspection | 5-1 |
| 5-4 | Electronic (Functional) Check | 5-1 |
| 5-5 | Mechanical Inspection | 5-2 |
| 5-6 | Printer Cleaning | 5-2 |
| 5-7 | Removal and Replacement Procedures | 5-2 |
| 5-8 | Printer Adjustments | 5-9 |
| | SECTION 6 – PARTS LIST | |
| 6-1 | Introduction | 6-1 |
| 6-2 | List of Units | 6-1 |
| 6-3 | Printer TT-649/UY Parts List | 6-1 |
| 6-4 | List of Manufacturers | 6-1 |


## LIST OF ILLUSTRATIONS


| Figure | Title | Page |
|---|---|---|
| | SECTION 1 – GENERAL INFORMATION | |
| 1-1 | Printer TT-649/UY | 1-0 |
| 1-2 | Major Components | 1-3 |
| | SECTION 2 – INSTALLATION | |
| 2-1 | Printer TT-649/UY, Outline Drawing | 2-2 |
| 2-2 | Printer TT-649/UY, Rear View | 2-3 |
| | SECTION 3 – OPERATION | |
| 3-1 | Printer TT-649/UY, Cassette Installation | 3-2 |
| 3-2 | Printer TT-649/UY, Control Panel | 3-4 |
| 3-3 | Printer TT-649/UY, Self Test Record | 3-7 |
| | SECTION 4 – TROUBLESHOOTING | |
| 4-1 | Electrolytic Printing Technique | 4-2 |
| 4-2 | Character Dot Patterns | 4-3 |
| 4-3 | Printer TT-649/UY Functional Block Diagram, Input Data Transfer Mode | 4-4 |
| 4-4 | Printer TT-649/UY Functional Block Diagram, Print Mode | 4-7 |
| 4-5 | Interface Signals | 4-11 |
| 4-6 | Interface Timing Diagram | 4-12 |
| | SECTION 5 – MAINTENANCE | |
| 5-1 | Printer TT-649/UY, Exploded View | 5-3 |

## LIST OF TABLES


| Table | Title | Page |
|---|---|---|
| | SECTION 1 – GENERAL INFORMATION | |
| 1-1 | Reference Data | 1-2 |
| 1-2 | Physical and Functional Data | 1-4 |
| 1-3 | Equipment Supplied | 1-6 |
| 1-4 | Equipment and Publications Required But Not Supplied | 1-7 |
| 1-5 | Consumables Required | 1-7 |
| | SECTION 2 – INSTALLATION | |
| 2-1 | Power and I/O Connectors (J1 and J2) | 2-4 |
| | SECTION 3 – OPERATION | |
| 3-1 | Operator Panel Controls and Indicators | 3-5 |
| | SECTION 4 – TROUBLESHOOTING | |
| 4-1 | Row Counter States | 4-8 |
| 4-2 | Character and Control Code | 4-13 |
| 4-3 | Printer Fault Isolation | 4-14 |
| | SECTION 5 – MAINTENANCE | |
| 5-1 | Daily Preventative Maintenance Summary | 5-1 |
| 5-2 | Weekly Preventative Maintenance Summary | 5-1 |
| 5-3 | Monthly Preventative Maintenance Summary | 5-1 |
| 5-4 | Maintenance Adjustment Guide | 5-10 |
| | SECTION 6 – PARTS LIST | |
| 6-1 | List of Units | 6-1 |
| 6-2 | Maintenance Parts List | 6-1 |
| 6-3 | List of Manufacturers | 6-11 |

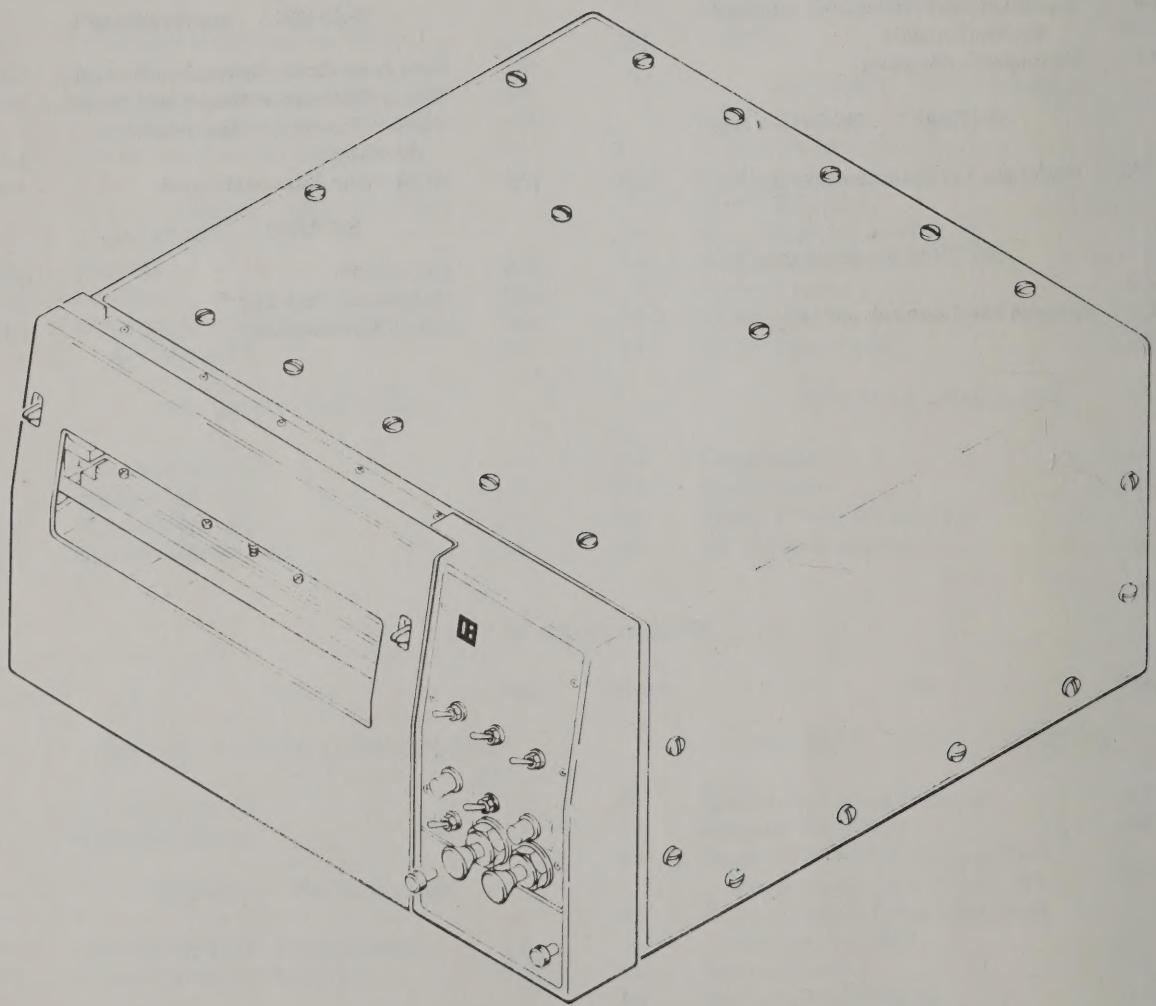


Figure 1-1. Printer TT-649/UY

Section 1

# GENERAL INFORMATION

## 1-1. SCOPE

This technical manual for the TT-649/UY Medium Speed Printer is in effect upon receipt. Extracts from this publication may be made to facilitate preparation of other Department of Defense Publications.

## 1-2. GENERAL DESCRIPTION

The TT-649/UY Medium Speed Printer (printer), figure 1-1, is a modular, non-impact printing device, providing extensive computer interface compatibility and integral self-testing. The printer is small in size and weight and is adaptable for either ship or shore installation. The printer utilizes special cassette-stored paper that provides up to two-year paper storage life, as specified in table 1-1.

## 1-3. REFERENCE DATA

Electrical, mechanical and operating characteristics are summarized in table 1-1.

## 1-4. PHYSICAL AND FUNCTIONAL DESCRIPTION

The printer consists of subassemblies fastened to a structural casting. The casting also supports a drive roller, idler, and stepper motor. Recording paper is contained in a preloaded cassette for easy insertion and removal.

The non-impact printing process from the receipt of the input data signal to the recording of permanent legible characters is performed electronically. The printer accepts digital input signals and electronically translates the input signals into electrode pulses which cause alphanumeric characters to be recorded on paper. The resulting record is an 80-column printout. Printing is accomplished by passing electrolytic type paper between a group of electrodes and a common then selectively causing current to flow from one electrode through the paper to the common. A mark or dot will appear at the point where the current passed through the paper.

This non-impact printing method utilizes a single row of 400 dot-forming printing finger electrodes spanning the width of the printing paper. The fingers are grouped five fingers per character position to form 80 character positions per line. As the paper moves under the fingers, each five-finger group under control of the logic and drive circuits deposits dots in the seven successive steps required to form a character within a 5 x 7 dot matrix. The dots are deposited when current passes from the common electrode through the conductive paper to the printing finger electrodes above. The printer is capable of printing up to 800 lines of alphanumeric characters per minute using this method.

Figure 1-2 illustrates the major components, and table 1-2 provides a brief summary for each component. The following paragraphs provide a physical and functional description of the major components listed below:

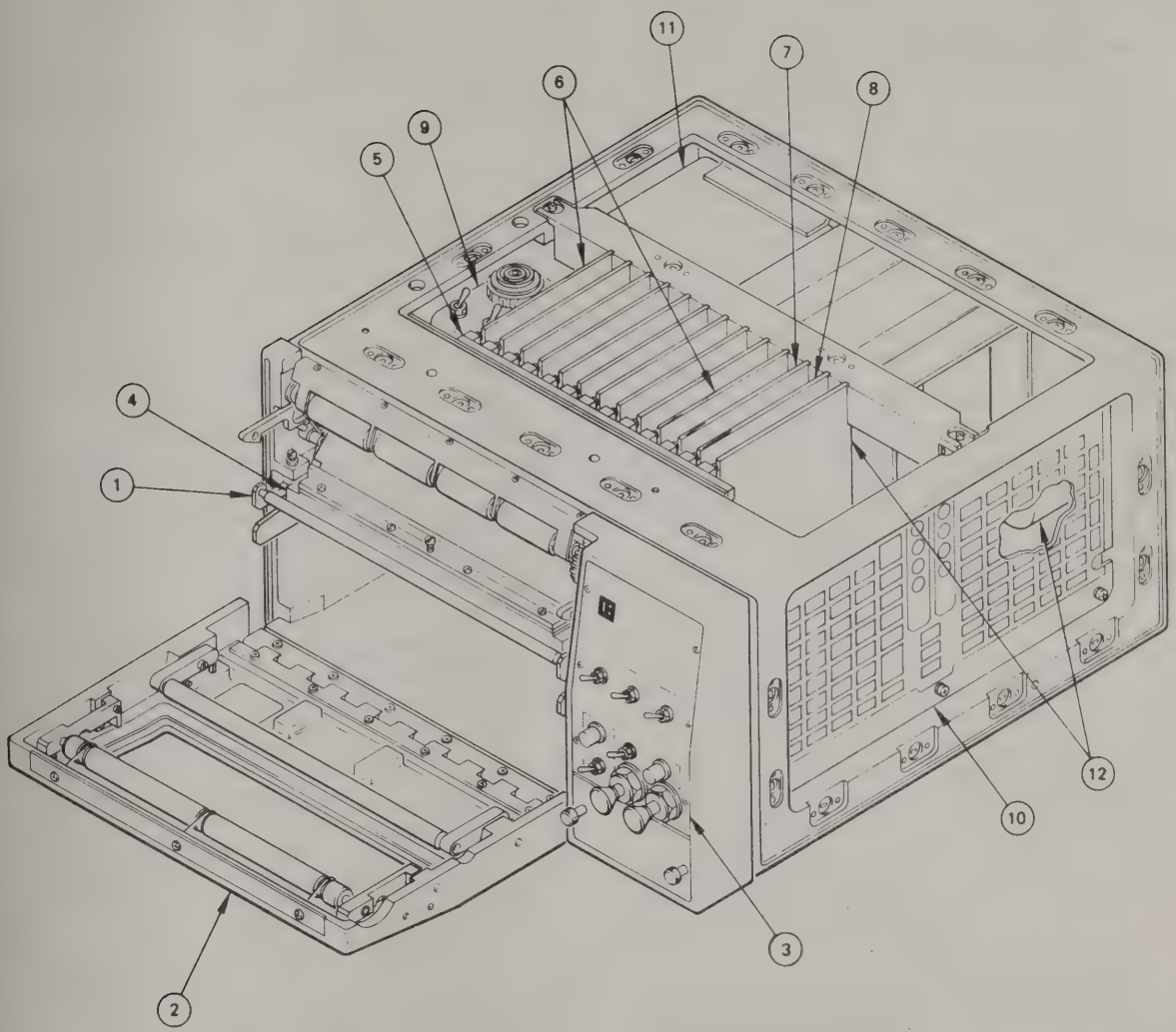
- Printer Mechanical Assembly
- Door Assembly
- Control Panel Assembly
- Print Head Assembly
- Drive Module Assembly
- Finger Driver Printed Circuit Board
- Common Driver Printed Circuit Board
- Motor Drive Printed Circuit Board
- Maintenance Panel
- Logic Board Assembly
- Power Supply Assembly
- Connector Assembly

a. PRINTER MECHANICAL ASSEMBLY - The Printer Mechanical Assembly provides support and mounting facilities for other assemblies, and contains the paper transport components which include the main drive roller, common drive roller, front idler roller, main drive/common drive coupling belt and paper feed stepper motor. No adjustments to the paper transport mechanism are required since the system is self-aligning within the normal tolerances of the components involved.

The Printer Mechanical Assembly also contains the input/output and power connectors. The

TABLE 1-1. REFERENCE DATA

| | |
|---|---|
| **DIMENSIONS AND WEIGHT** | |
| Height: 7-3/8 inches | Depth: 14-3/4 inches |
| Width: 14-1/2 inches | Weight: 48 pounds |
| **ENVIRONMENTAL CHARACTERISTICS** | |
| Printer Operation: | 0°C to 50°C<br>Relative humidity to 95% (with condensation) |
| Printer Storage: | -62°C to 75°C<br>Relative humidity to 95% (with condensation) |
| **POWER REQUIREMENTS** | |
| 115 VAC ± 10% 60 HZ ±10% single-phase, 330 watts maximum | |
| **OPERATING CHARACTERISTICS** | |
| Printing Rate: | 800 lines per minute |
| Print Positions: | 80 characters per line |
| Characters Available: | 65 unique alphanumeric symbols, plus space or blank |
| Character Size: | 0.099 inches high × 0.066 inches wide |
| Line Vertical Pitch: | 5.5 lines per inch |
| Character Horizontal Pitch: | 10 characters per inch |
| Page Format: | 8-1/2 inches fan-fold (8-inch fold) electrolytic paper |
| Warnings: | Paper break detection<br>Paper out detection |
| Radio Frequency Interference: | RFI shielding on covers and panels, AC input power shielded and filtered |




1. PRINTER MECHANICAL ASSEMBLY
2. DOOR ASSEMBLY
3. CONTROL PANEL ASSEMBLY
4. PRINT HEAD ASSEMBLY
5. DRIVE MODULE ASSEMBLY
6. FINGER DRIVER PCB
7. COMMON DRIVER PCB
8. MOTOR DRIVER PCB
9. MAINTENANCE PANEL
10. LOGIC ASSEMBLY
11. POWER SUPPLY ASSEMBLY
12. CONNECTOR ASSEMBLY

Figure 1-2. Major Components

TABLE 1-2. PHYSICAL AND FUNCTIONAL DATA

| MAJOR COMPONENTS | COMPONENTS/CONTENTS | FEATURES/FUNCTIONS |
|---|---|---|
| Printer Mechanical Assembly | Paper Transport Components:<br>Main Drive Roller<br>Common Drive Roller<br>Front Idler Roller<br>Main Drive/Common Drive Coupling Belt<br>Paper Feed Stepper Motor | No required adjustments to paper transport mechanism<br>Self-aligning assembly |
| Door Assembly | Main Idler Roller<br>Upper/Lower Rollers | Automatic door lock<br>Door Window provides viewing for 21 lines of print |
| Control Panel Assembly | MSP operating controls and indicators<br>Circuit Breakers<br>Elapsed Time Indicator | Controls MSP operation<br>Some controls used for test function |
| Print Head Assembly | 400 stainless steel printing fingers | Fingers provide proper pressure on paper for optimum printing |
| Drive Module Assembly | Maintenance Panel<br>13 PCBs:<br>10 finger driver PCBs<br>Common Driver PCB<br>Motor Driver PCB<br>Connector Assembly | Contain all drive circuitry<br>Contain two space connections positions for interface circuitry or special options |
| Finger Driver PCB | 40 Driver Amplifiers<br>Print Finger Control circuit | Operators as a 40-bit serial-in, parallel-out, shift register |
| Common Driver PCB | High voltage Control PCB<br>Paper Dryness Sensor<br>Finger short Detection Unit | Provides high voltage to common electrode on paper cassette<br>Samples dryness of paper<br>Detects paper tears or end of paper supply |
| Motor Driver PCB | Stepper Motor Power PCB<br>Motor Phase circuitry | Controls energization of stepper motor<br>Controls motor phase voltage |
| Maintenance Panel | Alarm Disable Switch<br>CR/LF Disable Switch | Provides controls for maintenance |
| Logic Assembly | Plug-in Logic Boards<br>MOS shift register<br>Read-only-Memory (ROM)<br>70 test points | Provides:<br>Input signal conditioning<br>Data storage<br>Character generation<br>Self-test functions |

TABLE 1-2. PHYSICAL AND FUNCTIONAL DATA (continued)

| MAJOR COMPONENTS | COMPONENTS/CONTENTS | FEATURES/FUNCTIONS |
|---|---|---|
| Power Supply Assembly | Multi-output DC power supply Self-contained | Provides high/low voltage source Provides overload circuitry for protection |
| Connector Assembly | Non-component printed wiring board | Interconnects drive module and harness |

connectors accommodate the input power lines and provide the electrical connections to the harness assembly.

b. DOOR ASSEMBLY - The Door Assembly contains the main idler roller, and lower wrap around roller. The rollers are mounted on two independently sprung idler arm brackets which permits alignment with their companion rollers on the Printer Mechanical Assembly when the Door Assembly is closed. The Door Assembly is fastened to the Printer Mechanical Assembly at the bottom of the door. A self-latching mechanism automatically locks the door in position when closed. The spring loaded idler arm assemblies prόvide the proper amount of pressure between the door rollers and the Printer Mechanical Assembly rollers for proper paper feeding. An opening in the door provides viewing of the printed record.

c. CONTROL PANEL ASSEMBLY - The Control Panel, located on the front of the printer, contains all of the controls and indicators required for printer operation. The elapsed time indicator and fuses are located behind the lower panel in the front of the control panel.

d. PRINT HEAD ASSEMBLY - The Print Head Assembly contains 400 individual stainless steel fingers. The fingers provide the proper pressure on the paper for optimum printing. Each finger is captured on either side by a barrier which provides insulation from the adjacent finger and provides adequate protection against damage due to cassette loading and normal handling procedures. The fingers are also protected by a retainer cover which encompasses the Print Head Assembly.

Each finger is connected to a conductor on a printed circuit board. These conductors in turn are connected to a wire wrap post. The wire wrap posts provide connection from the print head to the finger drive output. Therefore, each finger is electrically connected to the collector of a finger driver transistor.

e. DRIVE MODULE ASSEMBLY - The drive module subassembly consists of a wire wrap mother board containing 10 finger driver printed circuit boards (PCBs) required for 80-print positions, the Common Driver PCB, the Motor Driver PCB, the Maintenance Panel, and the Connector PCB. All of the drive circuitry is contained in the drive module. Two spare edge connector positions are provided for optional interface circuitry and other special requirements.

(1) Finger Driver PC Board - A single finger driver PC board operates as a 40-bit serial-in, parallel-out, shift register. The shift register output controls a single current limited finger driver transistor. The collectors of the 40 finger driver transistors on the board are connected to 40 fingers on the print head. Each finger driver board provides eight character columns of print.

(2) Common Driver PC Board - The common driver PC card contains the circuitry required to provide high voltage (50 vdc) to the printing common electrode. The voltage is turned on at the appropriate time by signals from the logic board. In addition, the common driver PC card contains the circuitry for sampling the paper to determine dry paper, wet paper, and head short conditions. The sampling circuitry receives the input from print finger 1 and print finger 400. These positions sample the paper at positions that detect dry paper and head short conditions the earliest.

(3) Motor Drive PC Board - The motor drive PCB contains the power driver for the stepper motor. A power driver circuit is provided for motor power and each of the four motor phases.

(4) Maintenance Panel - The maintenance panel contains the alarm disable switch and the CR/LF disable switch.

(5) Connector Assembly - The connector assembly is a printed wiring board which interconnects the Drive Module and the harness.

f. LOGIC ASSEMBLY - The Logic Assembly consists of a wire wrap logic card and contains the integrated control logic, MOS shift register, read-only-memory (ROM), and associated circuitry. All circuitry on the logic board is in the form of plug-in modules. The Logic Assembly contains a row of 70 test points arranged in logical sequence for troubleshooting. With the cover removed the logic board is accessible for troubleshooting and maintenance.

g. POWER SUPPLY ASSEMBLY - The power supply subassembly is a self-contained module that supplies the dc (direct current) voltages required for printer operation.

## 1-5. EQUIPMENT SUPPLIED.

Table 1-3 lists the equipment supplied as the TT-649/UY Medium Speed Printer.

## 1-6. EQUIPMENT AND PUBLICATIONS REQUIRED BUT NOT SUPPLIED.

Table 1-4 lists equipment and publications required, but not supplied to maintain and troubleshoot the printer.

## 1-7. CONSUMABLES REQUIRED FOR OPERATION.

Table 1-5 lists the consumables required for operation. These items are available as required.

TABLE 1-3. EQUIPMENT SUPPLIED

| QTY | NOMENCLATURE | PART, TYPE OR MODEL NUMBER | MFR'S NAME OR ECD CODE | REMARKS |
|---|---|---|---|---|
| 1 | Medium Speed Printer | 101792-100 | DmC | See Table 1-1 for physical dimensions |
| 1 | Mating I/O Connector | MS 3126 F20-41S | | See Table 2-1 for pin connections |
| 1 | Mating Power Connector | MS 3106 E22-2S | | See Table 2-1 for pin connections |
| 1 | | | DmC | |

TABLE 1-4. EQUIPMENT AND PUBLICATIONS REQUIRED BUT NOT SUPPLIED

| QTY. PER EQUIP. | NAME | DESIGNATION | REQUIRED USE | PRINTER CHARACTERISTICS |
|---|---|---|---|---|
| 1 | Multimeter | Simpson 200 or Triplett 360 | Troubleshooting and maintenance procedures | Wiring continuity and general voltage checks |
| 1 | Oscilloscope | Tektronix 454 or equivalent | Troubleshooting and maintenance procedures | Wave form, timing pulse, and voltage measurement |
| 1 | Finger Driver Circuit Card Extender, Dummy Load | DmC 101714-100 | Troubleshooting and maintenance procedures | Relocating printed wiring board to an accessible position |
| 1 | Finger Driver Circuit Card Extender | DmC 101713-100 | Troubleshooting and maintenance procedures | Relocating printed wiring board to an accessible position |
| 1 | Motor Driver Circuit Card Extender | DmC 101891-100 | Troubleshooting and maintenance procedures | Relocating printed wiring board to an accessible position |
| 1 | Common Driver Circuit Card Extender | DmC 101892-100 | Troubleshooting and maintenance procedures | Relocating printed wiring board to an accessible position |
| 1 | I C Extraction Tool | DmC 101890 | Repair | Removal ICs on Logic Assembly |

TABLE 1-5. CONSUMABLES REQUIRED

| QTY. | NOMENCLATURE | PART, TYPE OR MODEL NUMBER | MFR'S. NAME OR EDC CODE | REMARKS |
|---|---|---|---|---|
| As Req. | MC 3000 Cassette Assembly | 101734-100 | DmC | Contains printing paper and common electrode |
| As Req. | MC 3000 Electrolytic Paper | 101803-600 | DmC | For reloading cassette |
| As Req. | MC3000 Common Electrode | 101771 | DmC | For reloading cassette |

Section 2

# INSTALLATION

## 2-1. SITE SELECTION.

The printer may be located in ship or in shore installations. In either case, the primary site requirements are: (1) a surface capable of supporting at least 50 pounds, (2) adequate ventilation for equipment cooling and room for an operator, (3) a source of 60 HZ power of proper voltage and capacity, and (4) the capability for bolting the printer to the supporting surface in mobile, shore and ship installations. Figure 2-1 gives critical dimensions of the printer.

## 2-2. INSTALLATION.

a. STATIONARY SHORE INSTALLATIONS - Installation of the printer in stationary shore locations does not normally require bolting the unit to the supporting surface. The only other consideration besides those in paragraph 2-1 is that the front of the printer must overhang the supporting surface or be raised 1/2 inch to permit the door to open fully.

b. MOBILE SHORE AND SHIPBOARD INSTALLATIONS - Installation of the printer in mobile shore stations or on ships requires bolting the printer to the supporting surface. To accomplish this installation, drill four 7/16 inch holes in the mounting platform in a pattern corresponding to the hole pattern of the printer base (see figure 2-1). Secure the printer base to the platform with suitable length 3/8 - 16 UNC steel cadmium plated socket-head cap screws (MS 16995). The printer base contains the appropriate threaded inserts to accept these screws. Torque the mounting screws to 350 in.-pounds. The printer must overhang the mounting surface or be raised approximately 1/2 inch to permit the door to open fully.

c. POWER REQUIREMENTS - Primary power for the printer consists of single-phase, 60 Hz, 115 VAC. Power requirements and tolerance are given in table 1-1.

d. CHASSIS GROUND - Ground the printer if required, by means of the threaded NTDS 3/8 - 16 inch MS 16995, ground stud at the rear of the printer (see figure 2-2).

e. CONNECTORS AND CABLING - Cable connectors for the printer terminations are supplied with the printer (Table 2-1). Input/output (Interface), cabling, and the power cable must be fabricated by the user. Additionally, connectors for the non-printer end of the cables must be supplied also by the user.

## 2-3. PRELIMINARY INSTALLATION INSPECTION AND ADJUSTMENT.

a. PRELIMINARY INSPECTION - The printer should be inspected for physical damage caused in transit.

b. INITIAL INSTALLATION - Installation of the printer in the site selected and mounted in the manner in which the printer will be used. Ground the printer using the NTDS 3/8 stud provided at the rear. No installation adjustments are required.

c. INITIAL TEST - The cable connections may now be made and the printer loaded and operated, as described in chapter 3.

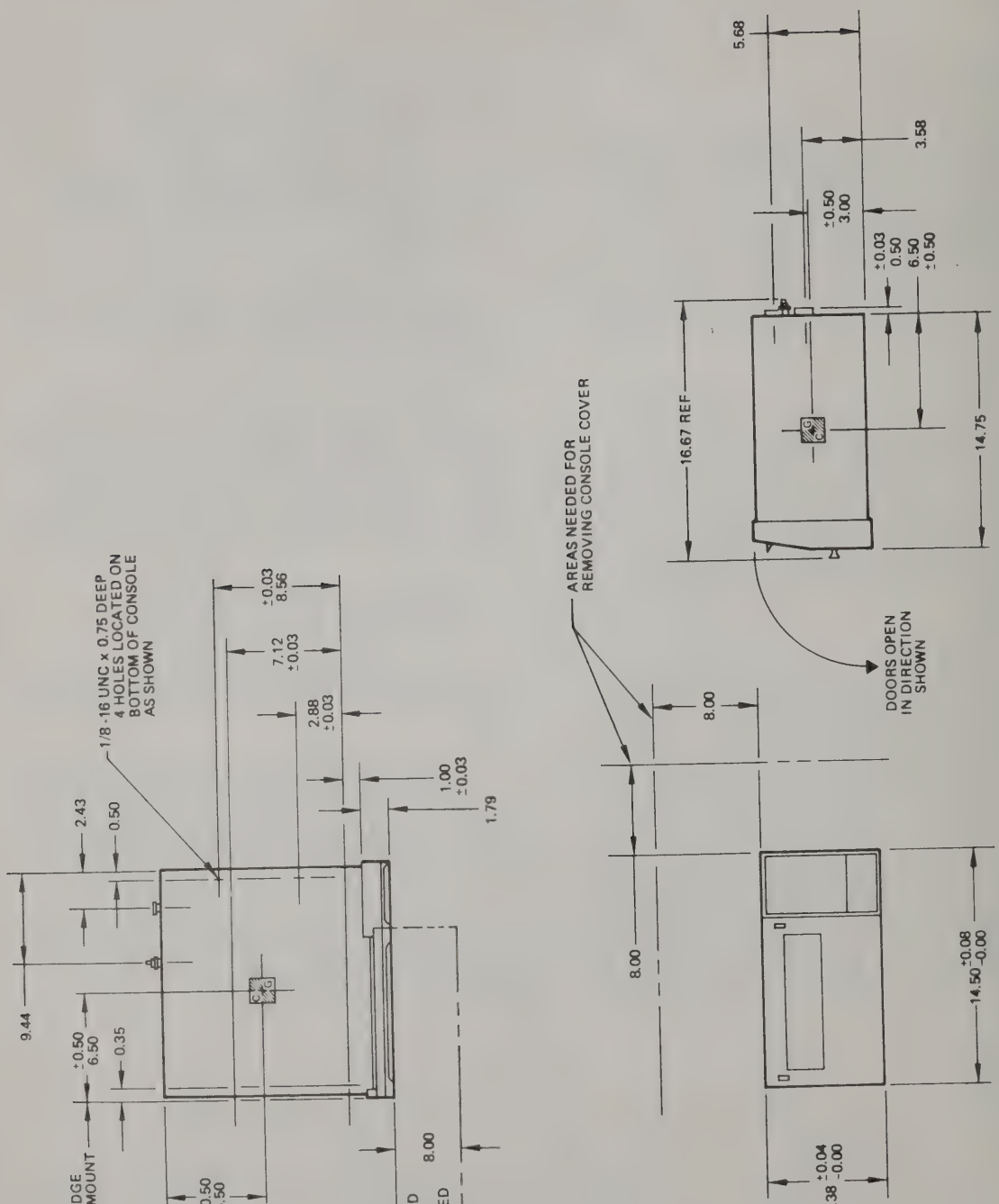
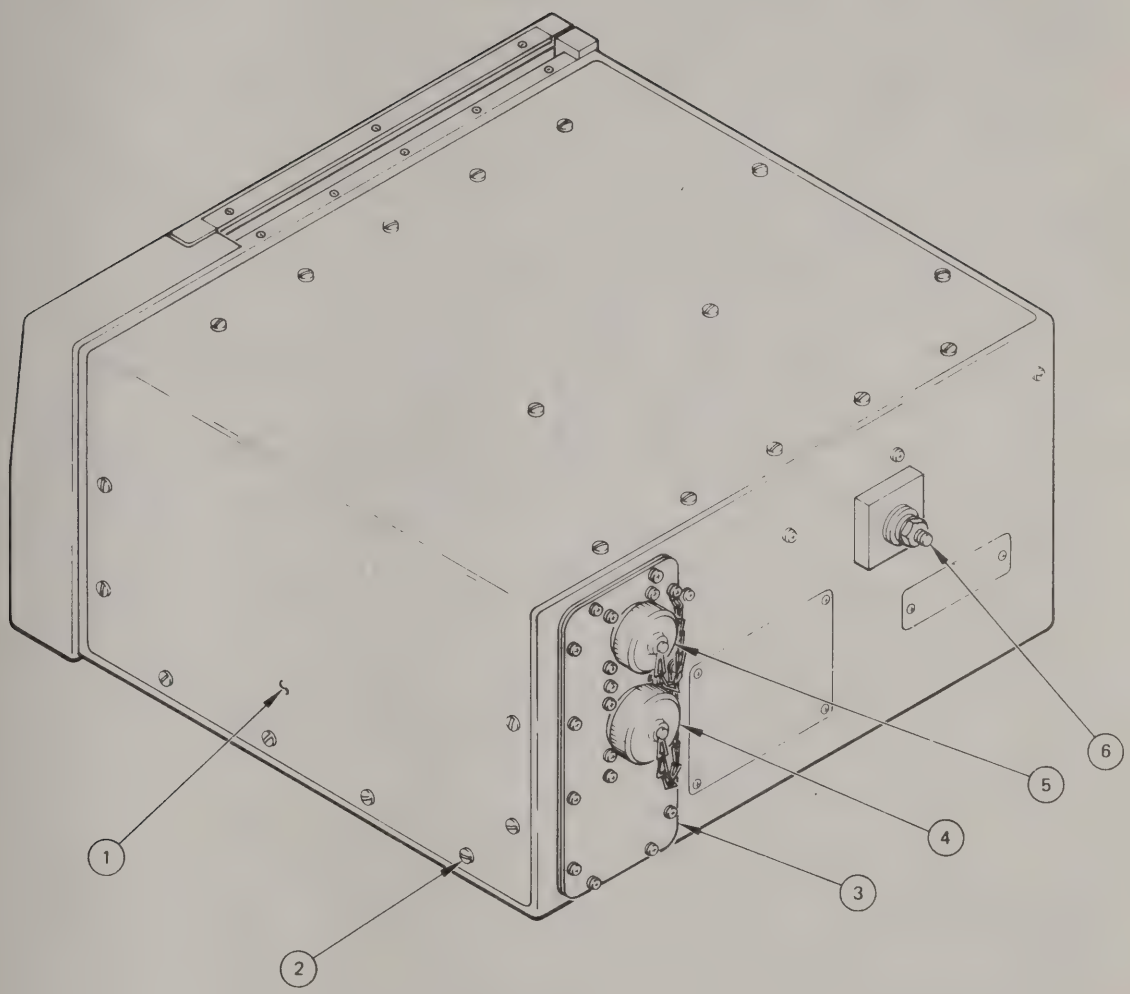



Figure 2-1. Printer TT-649/UY, Outline Drawing




1. MAIN ACCESS COVER
2. COVER 1/4 TURN FASTENERS (22 REQ'D)
3. REAR CONNECTOR PLATE
4. POWER CONNECTOR
5. INPUT/OUTPUT CONNECTOR
6. NTDS STUD (CHASSIS GROUND)

Figure 2-2. Printer TT-649/UY, Rear View

TABLE 2-1. POWER AND I/O CONNECTORS (J1 AND J2)

POWER CONNECTOR J1

| Signal Name | Pin Number |
|---|---|
| Chassis Ground | C |
| 115 VAC | A |
| 115 VAC Return | B |

Printer Connector MS 3100-E22-2P
Cable Connector MS 3106-E22-2S

I/O CONNECTOR J2

| Signal Name | Pin Number | | Signal Name | Pin Number | |
|---|---|---|---|---|---|
| | Signal | Signal Return | | Signal | Signal Return |
| $2^0$ Data | C | C | e | Spare | |
| $2^1$ Data | E | F | f | Spare | |
| $2^2$ Data | G | H | g | Spare | |
| $2^3$ Data | J | K | h | Spare | |
| $2^4$ Data | L | M | i | Spare | |
| $2^5$ Data | N | P | j | Spare | |
| $2^6$ Data | R | S | k | Spare | |
| Data Strobe | T | U | m | Spare | |
| Demand | V | W | n | Spare | |
| Ready | X | Y | p | Spare | |
| Alarm Ack | Z | a | q | Spare | |
| Audio Alarm | b | c | r | Spare | |
| DC Sig Gnd | A | | s | Spare | |
| DC Sig Gnd | B | | t | Unused | |
| d | Spare | | | | |

Printer Connector MS 3120 F20-41P
Cable Connector MS 3126 F20-41S

Section 3

# OPERATION

## 3-1. FUNCTIONAL OPERATION.

The function of the medium speed printer TT-649/UY is to provide electrically-printed, hard copy output from digital input signals emanating from a variety of computer interfaces. The printer is cassette loaded, and uses a non-impact, electronic printing method based on electrically conductive paper. The printer format is 80 characters per line at up to 800 lines per minute.

## 3-2. PREPARATION FOR USE.

a. PAPER CASSETTE LOADING - A paper cassette is loaded into the printer as follows.

(1) Open the front door by pressing in on the door while simultaneously lifting both left and right hand door latches. When the latches have been pushed up, relieve the pressure applied to the door and it will open (see figure 3-1a).

(2) Pull 8 or 10 inches of paper out of the cassette to facilitate loading.

(3) Insert the paper cassette through the front opening until the ends of the common electrode mate properly with the guide brackets in the printer.

Note

The ball-shaped fitting on the right end of the common electrode must touch the common contact in the printer.

(4) Feed the end of the paper under the lower wrap-around roller as shown in figure 3-1b, and grasp the paper from under the door wrap-around roller while closing the door.

Note

Straighten paper before closing the door.

(5) Complete paper cassette loading by pushing on door until door latches.

Note

To ensure proper paper tracking slew a few feet of paper out of the printer immediately after paper cassette loading is complete. This allows the paper transport to automatically center the paper and remove any skew caused by the loading operation.

b. PANEL CONTROLS AND INDICATORS - Panel controls and indicators are shown in figure 3-2. Table 3-1 provides a functional description of the controls and indicators.

c. PRELIMINARY ADJUSTMENTS.

(1) Place PWR ON/OFF switch in the ON position.

(2) Adjust PPR ILLUM switch for required level of illumination.

(3) Place ALARM LOUD/SOFT switch in desired position.

(4) Place EMPHASIS ENABLE/DISABLE switch in the appropriate position.

(5) Operate SLEW switch for a few seconds to ensure proper paper feed.

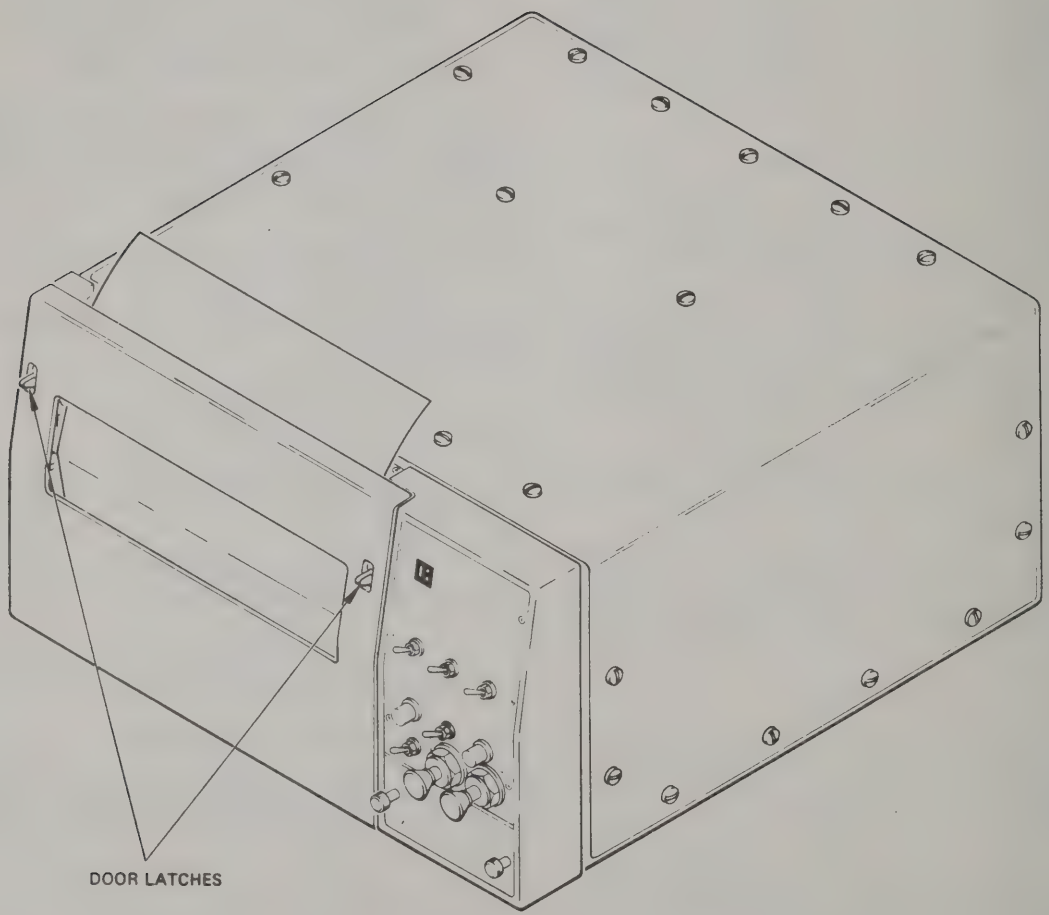
## 3-3. OPERATING PROCEDURE.

a. Place PWR ON/OFF switch in the ON position. Observe that the PWR ON and OPR lamps light.

b. Monitor printer operation as follows:

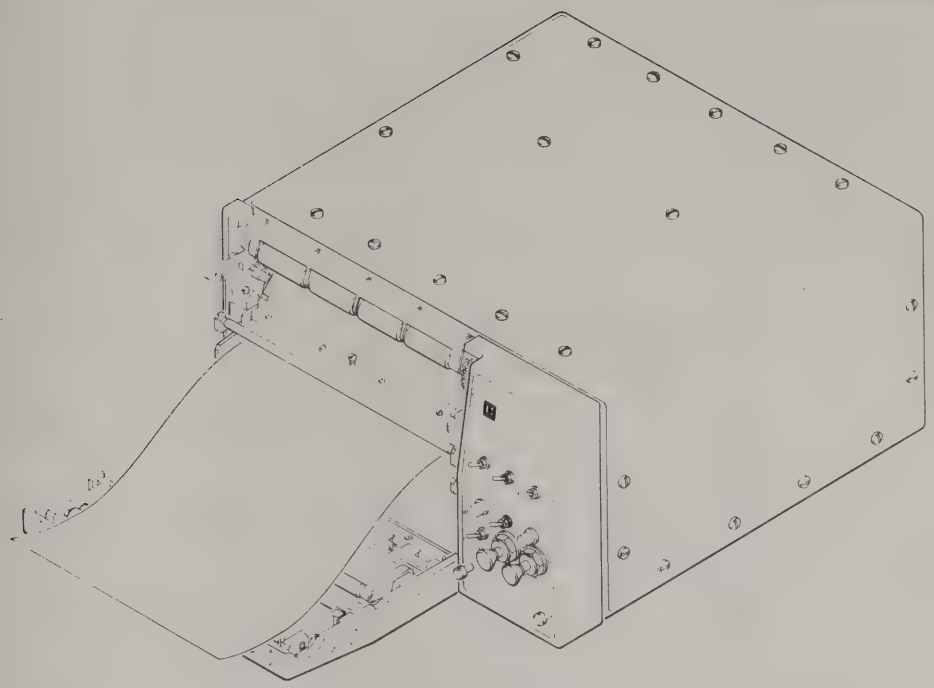
(1) Check that the paper flows smoothly past the viewing window on the front door and out the paper exit on top of the printer. If the paper appears to have wrinkles or to be tracking off to the side, check that the paper cassette is loaded properly.

(2) Check that printed copy moving past the viewing window is dark and legible.

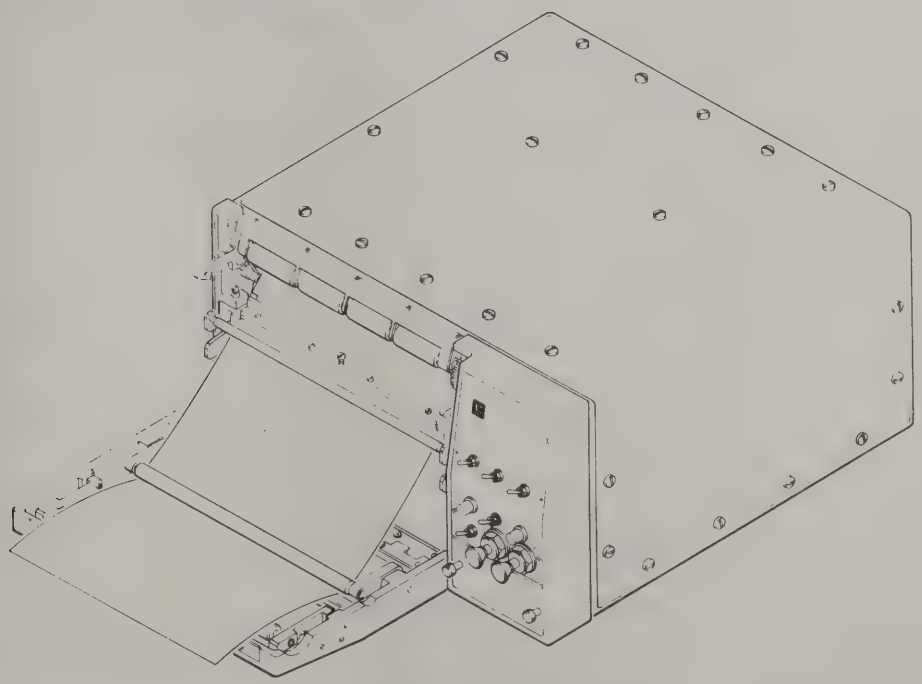



A. TO OPEN DOOR LIFT DOOR LATCHES

Figure 3-1. Printer TT-649/UY, Cassette Installation

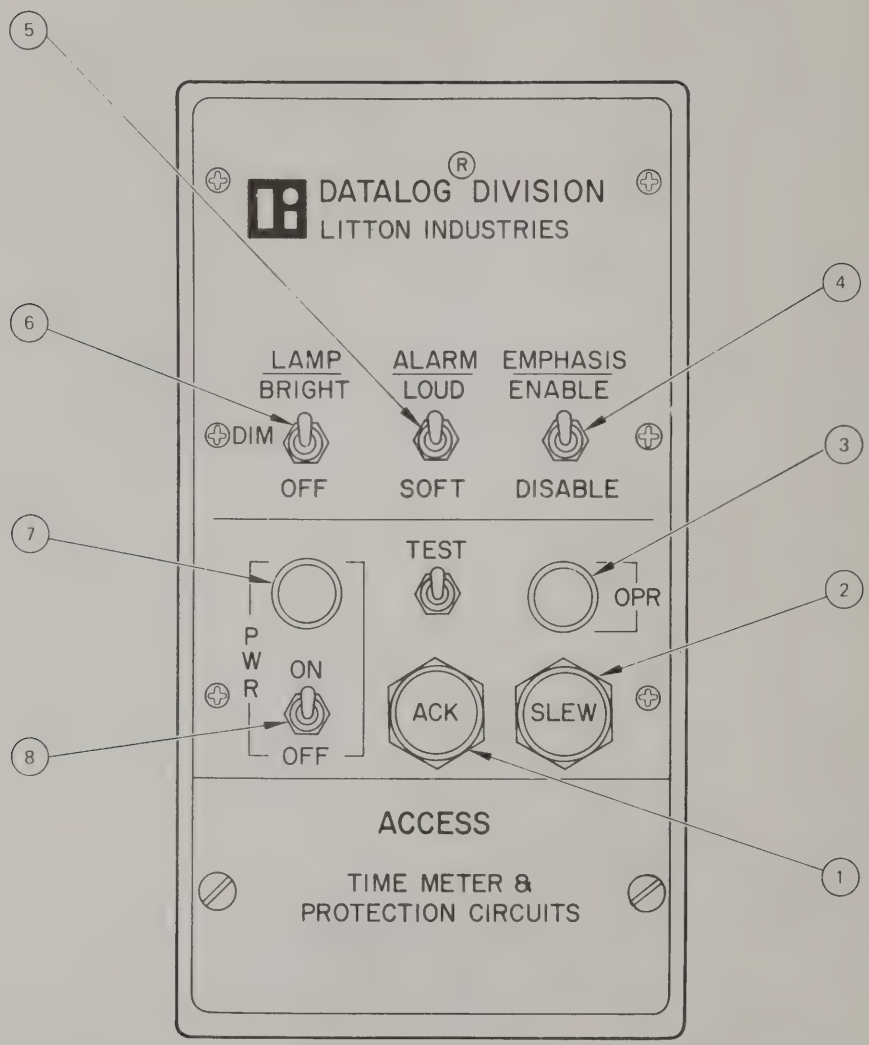


B. INSERT CASSETTE AND PULL PAPER OUT.



C. THREAD PAPER UNDER LOWER DOOR IDLER ROLLER

Figure 3-1. Printer TT-649/UY, Cassette Installation (continued)




1. ACK (ALARM ACKNOWLEDGE) SWITCH
2. SLEW (PAPER ADVANCE) SWITCH
3. OPERATE LAMP
4. EMPHASIS, ENABLE/DISABLE SWITCH
5. ALARM, LOUD/SOFT SWITCH
6. PPR ILLUM SWITCH
7. POWER ON LAMP
8. POWER - ON/OFF SWITCH

Figure 3-2. Printer TT-649/UY, Control Panel

TABLE 3-1. OPERATOR PANEL CONTROLS AND INDICATORS

| CONTROL OR INDICATOR | FUNCTION |
|---|---|
| PPR ILLUM Switch | Controls intensity of paper illumination. |
| ALARM LOUD/SOFT Switch | Controls the loudness of the 2800 Hz pulsating audible alarm. |
| EMPHASIS ENABLE/DISABLE Switch | When in the enable position the EMPHASIS switch causes the printer to sense the receipt of an SO data code and thereafter emphasize each printed character by placing a row of 5 dots below the character. Upon receipt of an SI data code the printer ceases to emphasize characters. When this switch is in the disable position the printer ignores SO and SI data codes. |
| PWR ON/OFF Switch | When placed in the ON (up) position, applies AC operating power to the printer. |
| PWR LAMP INDICATOR | When lighted, indicates that AC power has been applied to printer. |
| TEST Switch, momentary ON | When held in the ON (up) position by the operator, the printer prints out a repetitive self-test record. The record pattern will repeat every 20 seconds as long as the switch is held in the ON position. (See Figure 3-3 for an example of a self-test record.) |
| OPR<br>Lamp, Indicator | When lighted, indicates printer is ready to accept input signals. |
| ACK Switch, momentary | When operated, closes a set of contacts in the printer. Acknowledges receipt of externally activated alarm. Indicator lamp is lighted at all times. |
| SLEW Switch, momentary | When operated, causes printer to print out any data stored in the line storage register, and then continues to advance paper at the maximum rate as long as switch remains closed. |

(3) If background or ghost-like printing appears in non-printing areas, check to see that paper has been routed around lower wrap-around roller in front door.

(4) If the OPR indicator lamp goes out, check the paper cassette as this may indicate that the paper supply has been exhausted.

(5) Operate ACK acknowledge button on receipt of an external alarm.

(6) After required period of operation, place PWR ON/OFF switch in the OFF position.

3-4. OPERATOR'S MAINTENANCE.

a. OPERATING SELF-TEST CHECK - This check consists of running a self-test record at least once during an on-line shift. The operator performs this check by first holding the TEST switch in the up position for approximately 15 seconds, and then comparing the resulting printout with sample test printout shown in Figure 3-3. If a discrepancy exists, the operator notifies Maintenance to perform fault isolation.

b. PREVENTIVE MAINTENANCE - Preventive maintenance should be carried out by maintenance personnel. Refer to Section 5, Maintenance, for preventive maintenance routines.

c. EMERGENCY MAINTENANCE - Emergency operator maintenance is limited to circuit breaker resetting only, when regular maintenance personnel are not available. To check for tripped circuit breaker, remove the protective device access cover just below the operator's panel by turning out the two captive cover retaining screws. Reverse the procedure to close.

Figure 3-3. Printer TT-649/UY, Self Test Record

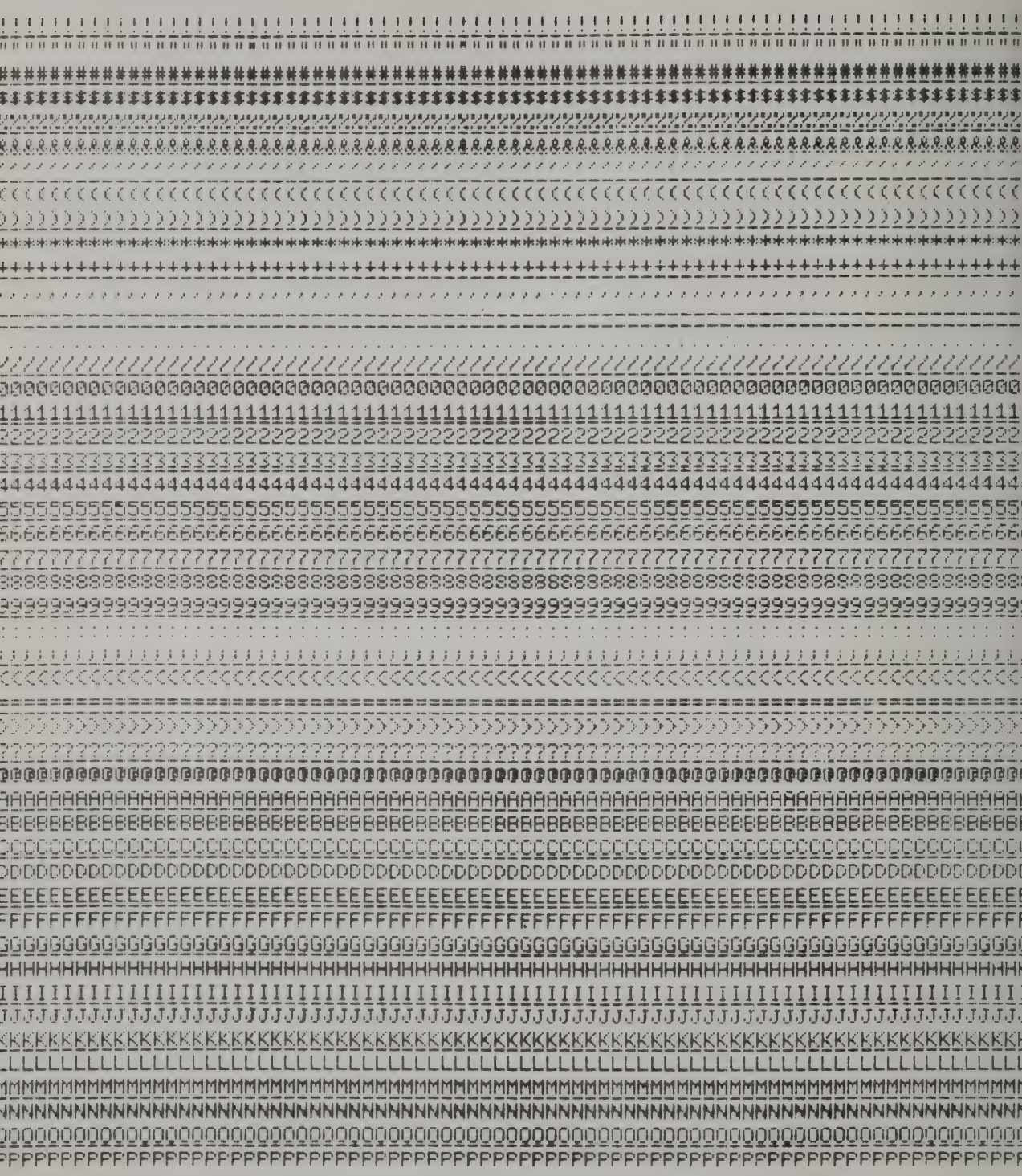


Figure 3-3. Printer TT-649/UY, Self Test Record (continued)

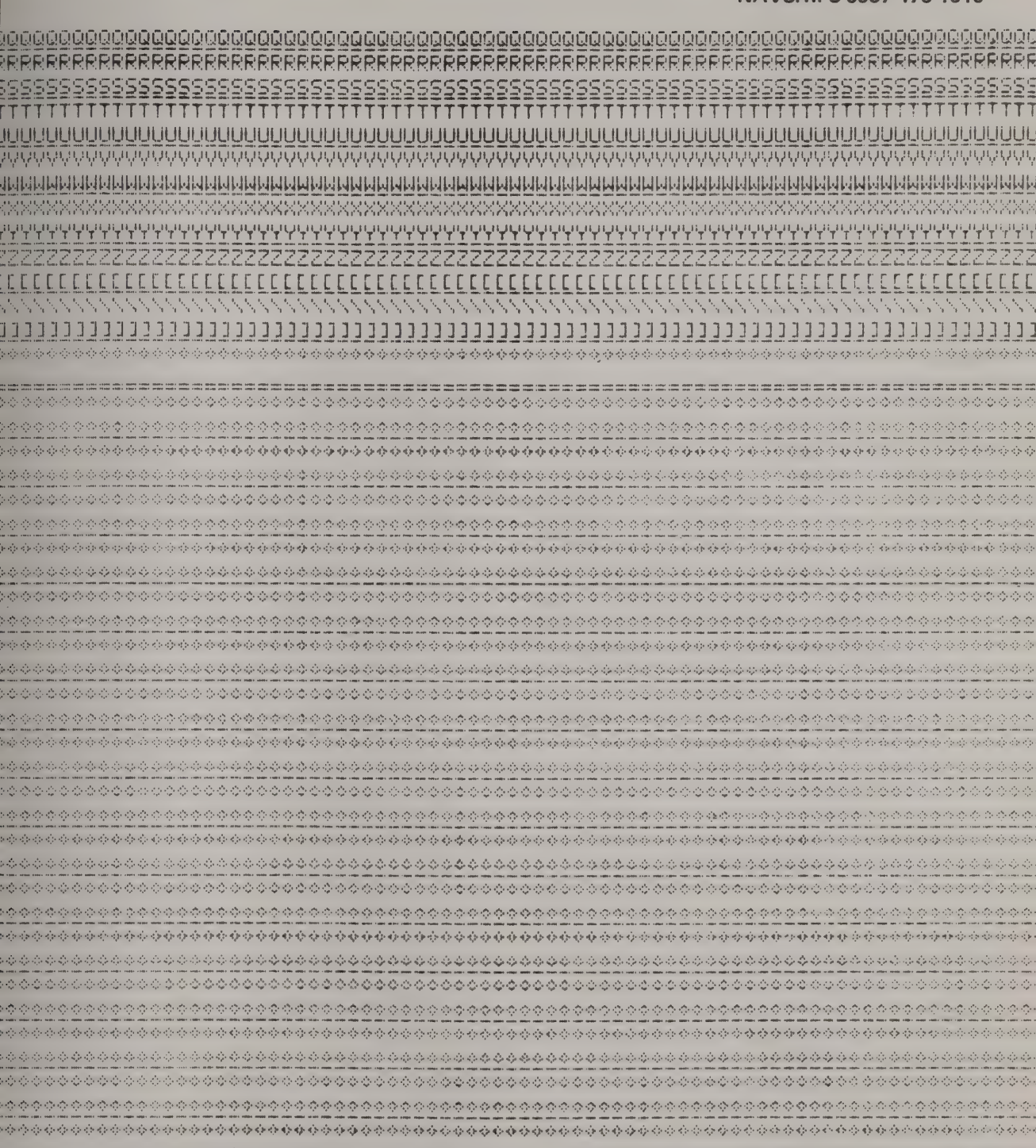


Figure 3-3. Printer TT-649/UY, Self Test Record (continued)

Section 4

# TROUBLESHOOTING

## 4-1. GENERAL.

This chapter provides the information necessary for maintenance personnel to detect and replace faulty modules and assemblies such as printed circuit boards, power supplies, plug-in integrated circuit modules, and the print head assembly. Subsection 4-2 provides a detailed functional description of printer operation, whereas subsection 4-3 presents the troubleshooting charts for guidance in replacing defective modules and assemblies.

## 4-2. DETAILED FUNCTIONAL DESCRIPTION.

a. GENERAL - The printer converts coded digital input data into hard-copy printed output at rates of up to 800 lines per minute. Each line consists of 80 print positions, with any one of 65 unique characters (including blanks) appearing in each position. Each input print character and printer control signal is represented by a seven-bit data or control word formatted by the data source.

b. OPERATING MODES - The printer has two operating modes; the input data transfer mode, and the print mode. In the input data transfer mode, the printer indicates it is ready to accept input data and control words by sending a demand signal to the external source. The data source responds by sending a seven-bit data or control word to the printer interface, along with a data strobe indicator. Upon receipt of the data strobe, the printer removes its demand signal while transferring the received seven-bit word to the line storage register. When the input cycle is completed, the printer reinstates the demand signal and waits to receive the next seven-bit word. This input sequence continues until the printer receives a line feed control word, at which time it removes the demand signal and initiates the print mode.

Note

If the CR/LF (carriage return-line feed) switch on the maintenance panel is in the CR/LF position, the print mode is initiated automatically when the 80th data word has been stored in the line storage register.

In the print mode the information stored in the storage register is printed out under control of the print mode logic circuitry.

The non-impact electrolytic printing method used in the printer depends on moisture in the paper to provide an electrical path for current passed between a print finger and the common electrode (see figure 4-1). When current is passed from the common electrode (positive) through the paper to a print finger (negative) a small amount of metal is removed from the common and deposited on the side of the paper facing the common electrode at the point where the print finger makes contact. This metallic deposit appears as a small dark dot on the paper. The print head in the printer consists of a single row of 400 individual print fingers which are logically controlled to pass current through the paper at the appropriate time, while the paper is moving, which causes a line of printed characters to be formed according to the data words stored in the line storage register during the preceding input data transfer mode. At each print position character or symbols are formed by a 5 by 7 dot matrix consisting of 35 discrete dot positions, as shown in figure 4-2. Character generator circuitry within the printer converts the stored seven-bit data words into 35-bit dot matrix words which are used to activate the print fingers.

The print control circuitry accepts all of the print initiating signals generated by the input data transfer circuitry. The signals are the result of one of the following:

(1) Line feed signal which can come from the character counter as previously described or from decoding of a line feed input code.

(2) Decoded form feed code.

(3) Paper slew signal when slew switch on control panel is operated.

c. INPUT DATA TRANSFER MODE - DETAILED DESCRIPTION - Figure 4-3 is a general functional block diagram showing the major data paths and control logic within the printer

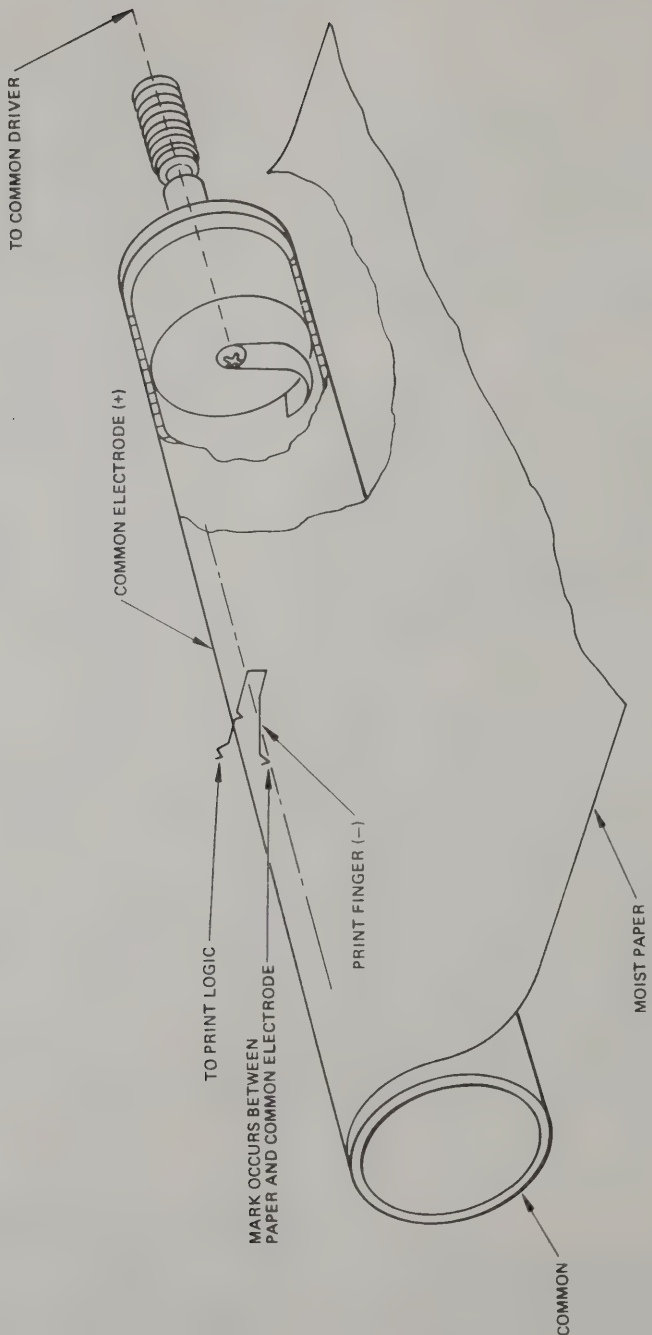



Figure 4-1. Electrolytic Printing Technique

Figure 4-2. Character Dot Patterns

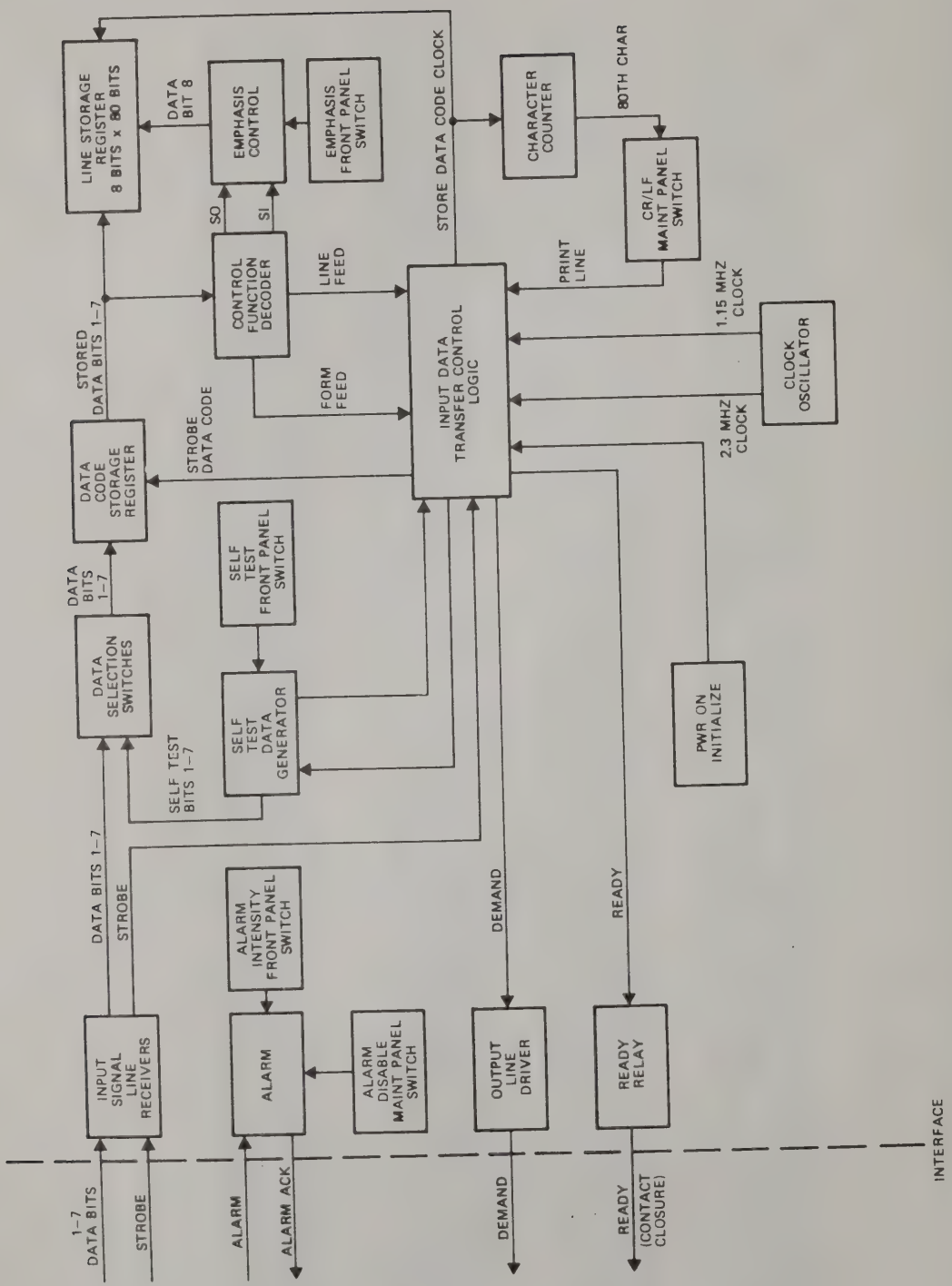



Figure 4-3. Printer TT-649/UY Functional Block Diagram, Input Data Transfer Mode

during the input data transfer mode. The following paragraphs describe the signal flow and associated control functions from initial turn-on of the printer through loading of a complete line of data.

(1) Power-On Initialize - When printer power is turned on the power on initialize circuitry generates a 100 millisecond logical level pulse to initialize the system. This pulse performs the following functions:

(a) Resets self-test flip-flops
(b) Resets character counter
(c) Clears line storage register
(d) Clears data code storage register.

(2) Clock Oscillator - The clock oscillator circuitry consists of a 4.6 MHz crystal controlled oscillator and a two-bit divider. Outputs from the clock oscillator consists of a 2.3 MHz clock pulse (CL2) and a 1.15 MHz clock pulse (CL1).

(3) Alarm - The alarm circuitry consists of a Sonalert alarm, loudness control switch, alarm disable switch and alarm acknowledge switch. The Sonalert is activated by an external source supplying 10-15 VDC to the alarm input terminals. The loudness control switch places a resistor between the external voltage input terminal and the Sonalert, decreasing the loudness level. The alarm disable switch is in series with the input alarm terminal and the Sonalert. When in the disable position the alarm activating voltage to the Sonalert is interrupted.

The alarm acknowledge switch contacts are connected to the I/O connector. This switch sends out acknowledging signal to the external alarm source. It performs no function within the printer.

(4) Input Signal Line Receivers - The input signal line receivers isolate all of the input data and control lines from the external data source equipment.

(5) Data Selection Switches - The data selection switches select external data and control signals or internally generated self-test data and control signals.

(6) Data Code Storage Register - The data code storage register accepts seven bits of data from the data selection switches, and stores this information for subsequent processing when strobed by the input data transfer control logic.

(7) Control Function Decoder - The control function decoder monitors the data stored in the data code storage register for receipts of one of the four possible control function codes, namely:

(a) Line Feed
(b) Form Feed
(c) SO (Begin Emphasis)
(d) SI (End Emphasis).

The line feed and form feed codes are fed to the input data transfer control logic, terminating any input data transfer sequence, and initiating the print mode sequence. The SO and SI decoded signals are fed to the emphasis control circuitry.

(8) Emphasis Control - The emphasis control circuitry is used to generate an eighth bit of data which is sent to the line storage register along with the other character data. This eighth bit of information is used to indicate that a character should have a horizontal line printed under it. Upon receipt of a decoded SO signal, the emphasis control circuitry sends out an eighth bit for every subsequent character received, until a decoded SI signal is received. The emphasis control circuitry is disabled by the emphasis switch in the front panel.

(9) Line Storage Register - The line storage register receives bits one through seven from the data code storage register and bit eight from the emphasis control circuitry. This register is capable of storing 80, eight bit characters which are equivalent to one full line (80 columns) of data. Character data is stored sequentially in this register as it is received from the external data source.

(10) Character Counter - The character counter is used to keep track of the number of characters stored in the line storage register. Each individual data transfer advances the counter one

count. The counter ignores special control code inputs such as line feed, form feed, SO and SI. Unless disabled by the CR/LF switch on the maintenance panel, a signal is generated upon receipt of the 80th data transfer that terminates the input data transfer cycle and initiates a print cycle.

(11) Input Data Transfer Control Logic - The input data transfer control logic is initiated by an input data strobe signal received from an input line receiver. Upon receipt of the data strobe signal the input control logic:

(a) Lowers the output demand line.

(b) Sends a secondary data strobe signal to the data code storage register.

(c) Develops a line storage clock signal that transfers new data into the register and shifts previously stored data one position to the right.

(d) Provides clock signal that advances the character counter. This control logic utilizes CL1 and CL2 clocks to synchronize the input mode with the print mode.

(12) Self-Test - The self-test circuitry provides the printer with internally generated data and control signals when enabled by the self-test switch on the control panel. In the self-test mode the data selection switches are set to receive data and control signals from the self-test circuitry only. Activation of the self-test function automatically lowers the output demand line.

(13) Output Ready Signal - The output ready signal is a relay contact closure indicating that the printer is capable of normal operation. The ready relay will remain energized only if the following conditions are met:

(a) Front door is closed.

(b) DC voltages are at their proper level.

(c) Paper moisture is acceptable for printing.

(d) Paper is in printer and is not torn.

d. PRINT MODE - DETAILED DESCRIPTION - Figure 4-4 is a general functional block diagram showing the major data paths and control logic within the printer during print mode operation. The following paragraphs describe the signal flow and associated control functions from initiation of a print cycle to the printing out of one line of data.

(1) Divide-By-Three Counter - The divide-by-three counter is unlocked when a cycle is initiated and divides the 1.15 MHz clock signal by three. This signal is used in the generation of the recirculate data clock and shift clock during the print cycle.

(2) Divide-By-80 Counter - The divide-by-80 counter accepts the output of the divide-by-three counter during a printout cycle. This is the same counter that counted characters during an input data transfer cycle. During printout this counter provides the necessary time increments to recirculate data and shift dot clock during each row scan.

(3) Divide-By-32 Counter - The divide-by-32 counter accepts output from the divide-by-80 counter during the printout cycle only. This counter separates the recirculate data, shift dot register time, from the print dot time. Data is recirculated and dots shifted while this counter is in the zero state. Printing of dots takes place during the counters non-zero state.

(4) Paper State Inhibit Gate - The paper state inhibit gate controls the clear input of the divide-by-12 row counter. This inhibit gate will prevent the row counter from counting beyond the 'O' state if the paper is too dry.

(5) Dry Paper Head Short Control - The dry paper head short control circuitry samples the state of the paper during the print cycle. Its output is used to control the paper state inhibit gate when the paper is dry, and controls the motor control circuit and print control circuit when a head short exists.

(6) Divide-By-12 Row Counter - The divide-by-12 row counter accepts the output of the divide-by-32 counter. This counter meters the twelve discrete steps in each print cycle. Table 4-1

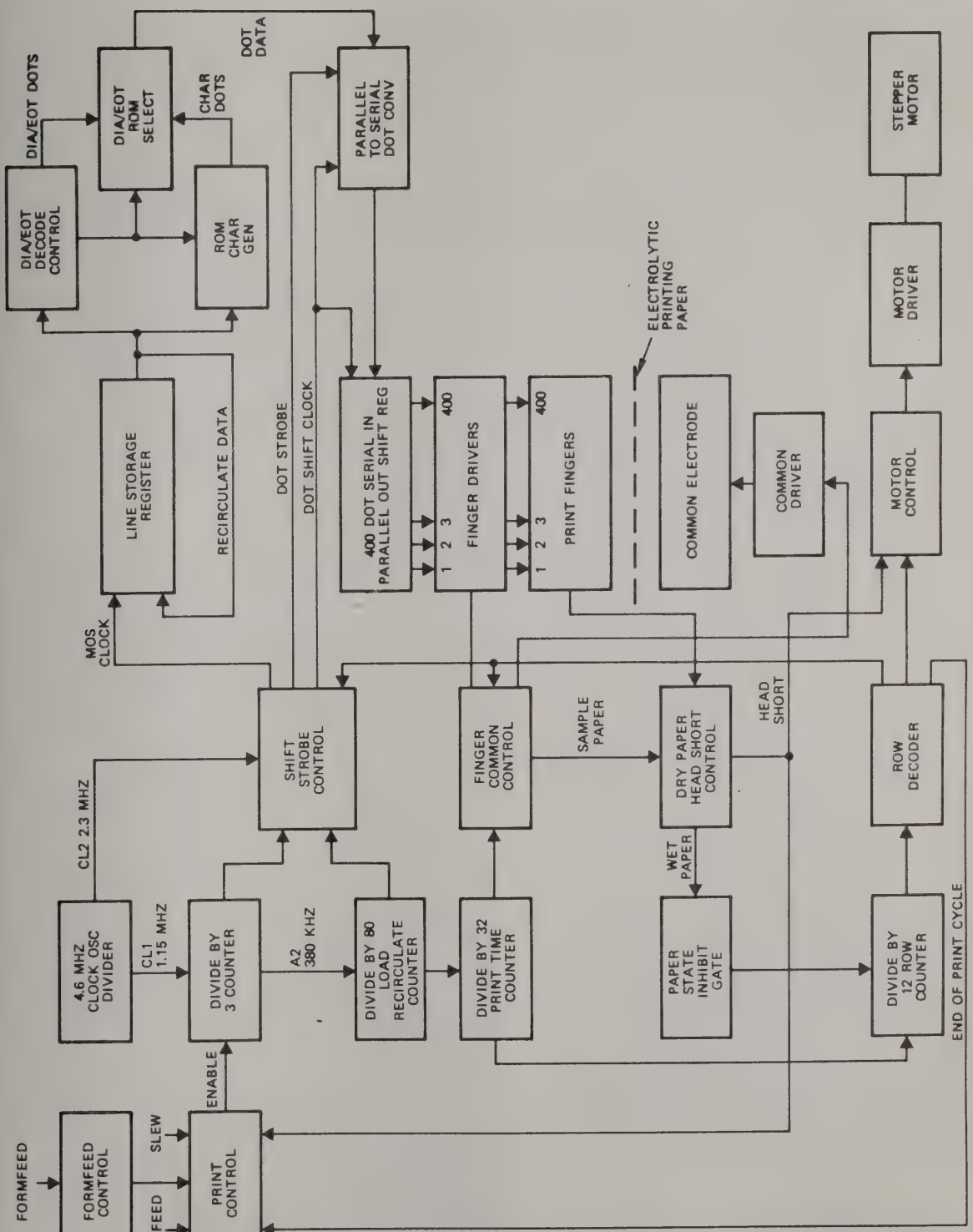



Figure 4-4. Printer TT-649/UY Functional Block Diagram, Print Mode

TABLE 4-1. ROW COUNTER STATES

| ROW COUNTER STATES (Row Scans) | PRINTER FUNCTION PERFORMED |
|---|---|
| Binary 11 | Counter advances to this state from the binary 10 state immediately upon receipt of print mode initiation signal. No printing takes place during this state. Paper advances on this state. |
| Binary 0 | Paper sampling circuits are active during this state. No printing takes place but paper advances during this state for each counter input signal. Counter will not advance from this state without a good paper sample state. |
| Binary 1 through Binary 7 | These are printing row scans. A different row of dots is printed for each state of the counter one through seven. |
| Binary 8 | No printing takes place during this state. Paper advances one increment. |
| Binary 9 | Emphasis marks are inserted during this state. Paper advances one increment. |
| Binary 10 | Print cycle is complete when counter advances from Binary 9 to Binary 10. Print control flip-flop is restored and paper does not advance.<br><br>Counter remains in this state when in an idle condition and during input data transfer mode. |

describes the different states of this counter and what functions are performed during each state.

(7) Shift Strobe Control - The shift strobe control circuitry combines outputs from the divide-by-three counter and the divide-by-80 counter with the CL1 and CL2 clocks to generate the dot strobe signal (DOS) and the dot shift clock (ORC). The dot strobe signal consists of 80 strobe pulses used to load dot information into the parallel-to-serial dot converter. The dot shift clock consists of 80 groups of five pulses each used to shift the dot information out of the parallel-to-serial converter into the 400-bit dot shift register.

(8) Line Storage Register/Print Cycle - (The line storage register, described under the input data transfer mode, is also described here for operation in the printout mode.) During the printout cycle the line storage register is recirculated during the zero state of the divide-by-32 counter for each state of the divide-by-12 row counter (except for the binary 10 or idle state). The clock signal used to recirculate the data during those times is generated by the shift strobe control circuitry previously described.

(9) ROM Character Generator - The read-only memory (ROM) character generator consists of a metal oxide semiconductor (MOS) read-only memory that accepts six bits of data, three of row position information, and an inhibit signal. The six bits of data are received from the output of the line storage register. The row position information

is received from the divide-by-12 counter. The inhibit signal is supplied by the DIA/EOT decode control circuitry. The output of the ROM consists of five lines of character dots of the selected row for the character represented by the six-bit data code.

(10) DIA/EOT Decode Control - The DIA/EOT decode control circuitry is used to generate the two special characters that cannot be supplied by the ROM, the diamond (◇) and EOT ( ). These must be generated separately and combined with the ROM outputs before inputting to the parallel-to-serial converter. The DIA/EOT decode circuitry provide an inhibit signal to disable the ROM whenever a DIA or EOT is received.

(11) DIA/EOT Select - The DIA/EOT select gates combine the ROM output with the DIA/EOT decode control circuitry. The combined output is sent to the parallel-to-serial converter.

(12) Parallel-to-Serial Dot Converter - The parallel-to-serial dot converter receives the five-dot output from the EOT/DIA-ROM select circuitry. Dot information is loaded into the converter as five parallel lines when the dot strobe signal is present. The dot shift pulses occur immediately after the strobe signal, causing the five-dot character information to be serially shifted out of the converter.

(13) 400-Dot Serial-to-Parallel Shift Register - The 400-dot serial-to-parallel shift register accepts 80 groups of five-dots at the beginning of each row scan. These are stored in parallel, ready to be sent simultaneously to the finger drivers for printing.

(14) Finger Drivers - The finger drivers, under control of the finger common control, parallel-couple the output of the 400-dot serial-to-parallel shift register to the 400 printing fingers. The finger drivers sink the current from the common electrode through the printing paper to the printing fingers, depositing the desired dot patterns on the paper to form the print characters.

(15) Print Fingers - The 400 individually suspended metal print fingers are arranged in a horizontal row as 80 groups of five fingers each, in the print head. When a finger driver and the common electrode are both energized, current flows from the common electrode through the paper into the associated print finger. This process causes molecules of metal to be removed from the common electrode and deposited on the printing paper as a visible black dot.

(16) Finger Common Control - The finger common control accepts inputs from the divide-by-12 row decoder and divide-by-32 counter and generates two control functions that determine finger driver and common driver "on" time.

(17) Common Driver - Upon receipt of the common control signal, the common driver impresses and enabling high voltage level on the common electrode.

(18) Common Electrode - The common electrode is contained in the paper cassette. Inserting the cassette into the printer automatically provides an electrical connection from the common electrode to the common driver output within the printer. Any finger driver which is turned on during the time that the high voltage exists on the common electrode will cause metal to be removed from the common and be deposited on the paper.

(19) Row Decoder - The row decoder accepts outputs from the divide-by-12 counter and generates discrete row scan signals for controlling various sections of the printer. These signals are used to select row information in the ROM, tell when to sense the state of the paper, when to turn on the finger and common control, and when to terminate the print mode.

(20) Motor Control - The motor control circuitry consists of a two-bit counter which receives its clock from the row decoder and other timing signals. The output of this circuitry provides enable signals for each of the four motor phases as well as the motor power control.

(21) Motor Driver - The motor driver accepts inputs from the motor control circuitry and provides the power drive outputs for motor operation. Four outputs are provided, one for each of the motor phases.

(22) Stepper Motor - The stepper motor is a fast response, high torque, four phase stepper motor capable of driving the entire paper transport on demand from 0 to 800 lines per minute. At 800 lines per minute the motor is stepping at a rate of 146.7 steps per second.

e. LOGIC LEVELS - The dc level representing a logical zero state at the printer interface is 0.0 to +0.8 volts; the dc level representing a logical ONE is 3 to 5.5 volts.

f. INTERFACE SIGNALS - The interface signals between an external data source and the printer are routed through connector J2 on the rear printer panel (see figure 4-5). Their timing relationship is shown in figure 4-6. The following paragraphs briefly describe the interface signals.

(1) Ready - The ready signal (a relay contact closure) originates in the printer and indicates to the external data source that the printer is capable of accepting data. Ready is false (contacts open) when any of the following conditions exists:

(a) Paper supply exhausted.

(b) Paper torn.

(c) Door open.

(d) Power off and power on initialize.

(e) Any of the DC power supply outputs low.

(f) Printer in test mode.

(g) Printer inoperative.

(2) Ready Return - The ready return signal is the other side of the relay contacts as shown in figure 4-5.

(3) Demand - The demand signal originates in the printer and is used to synchronize data transmission between the external data source and the printer. The demand signal is true (logic "1") when the printer is capable of accepting a character and remains in this state until a data strobe is transmitted by the external equipment. After receipt of a data strobe the demand line goes false and remains false while the printer is processing the data transfer. The demand line cannot be true unless the ready line is true. The demand line will also be false under the following conditions:

(a) While printer is in the print mode.

(b) While slew (paper advance) button is depressed.

(c) During self-test.

The demand return line is connected to printer signal ground.

(4) Strobe - This signal originates in the external equipment and indicates to the printer that a character has been placed in the data line for the printer to sample. The printer responds to the rise of the strobe signal by lowering the demand line and initiating a data transfer cycle. The strobe return line is connected to the printer signal ground.

(5) Data Lines - The seven data lines originate in the external equipment and are sampled by the printer upon receipt of a strobe signal. The state of these lines when sampled determine the print character or function transmitted to the printer.

(6) Audible Alarm - This signal originates in the external equipment and drives the audible alarm contained within the printer. Both terminals of the alarm are brought to the I/O connectors. The external equipment supplies the voltage (10–15 VDC) to generate the alarm.

g. CHARACTER AND CONTROL CODES - The 128 character and control codes available to the printer are listed in table 4-2.

## 4-3. TROUBLESHOOTING THE MEDIUM SPEED PRINTER.

Troubleshooting the medium speed printer is limited to isolation and replacement of faulty printed circuit boards, the major mechanical assemblies, and the power supply. Table 4-3 contains the step-by-step procedures for locating these faulty components. Replacement procedures for

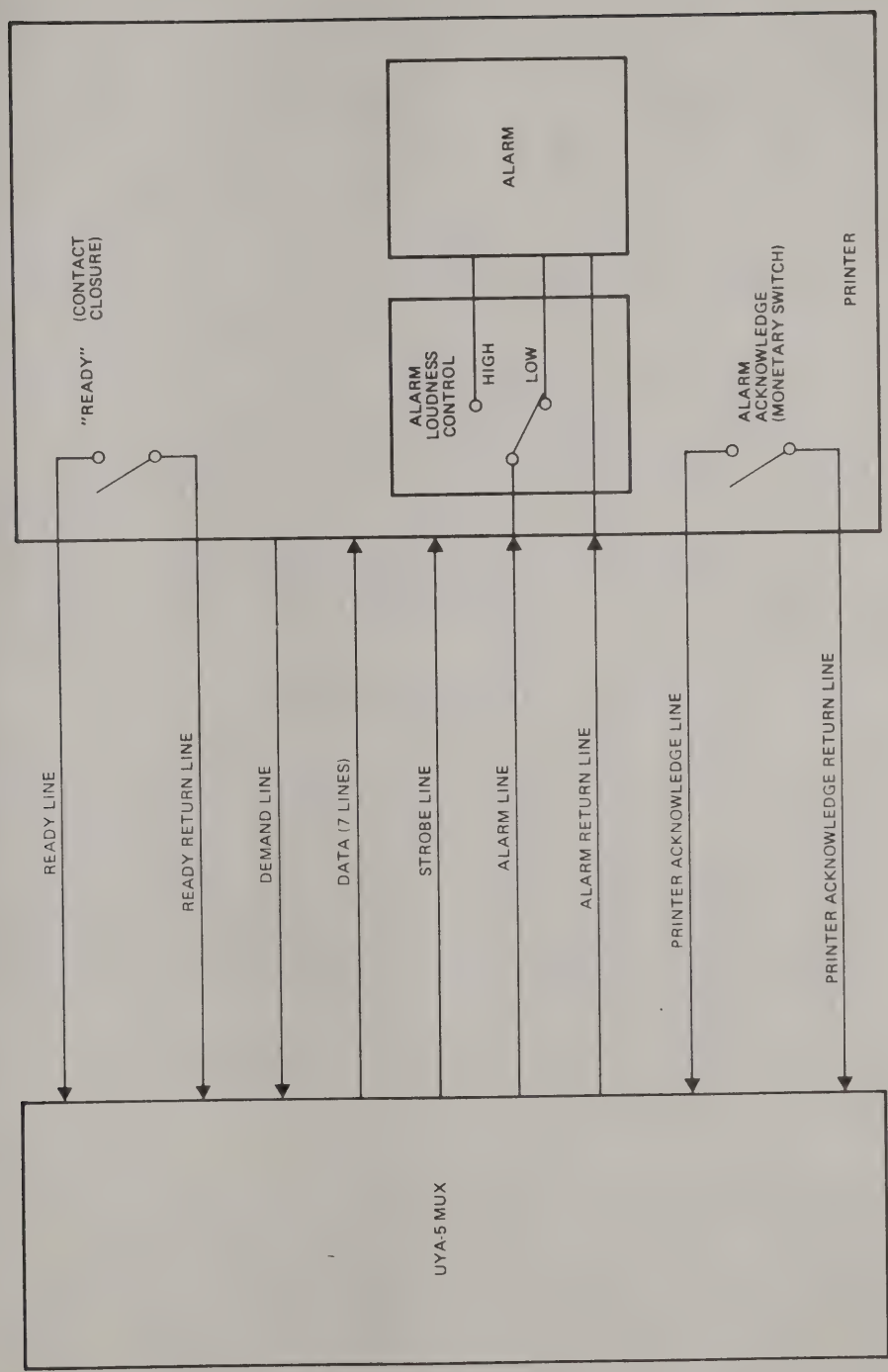



Figure 4-5. Interface Signals

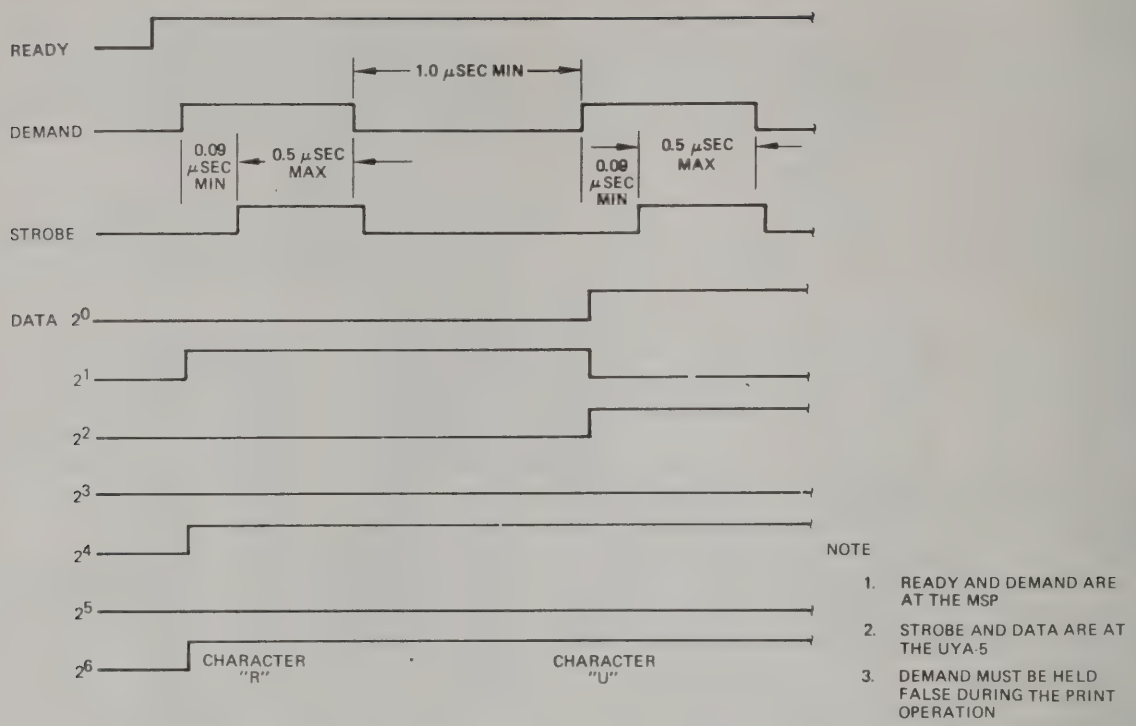



Figure 4-6. Interface Timing Diagram

all of the major assemblies and modules are given in Chapter 5.

This level of troubleshooting requires no special test equipment or tools, and may be carried out by technicians of minimal skill level. All that is required is an inventory of spare circuit boards, power supply modules and major mechanical assemblies.

To utilize table 4-3 for scheduled preventive maintenance, or when the printer malfunctions, follow the procedures specified in the table, beginning with step 1 and proceeding through step 25. Observe the control panel status lights, operate the control panel switches, and scan the self-test record for symptoms of malfunction, as required by the table. Replace faulty circuit boards and assemblies as indicated.

TABLE 4-2. CHARACTER AND CONTROL CODE

| Column | | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| b7 | | | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | ROW |
| b6 | | | | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| b5 | | | | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | |
| b4 | b3 | b2 | b1 | | | | | | | | | |
| 0 | 0 | 0 | 0 | NUL ① | ◇ | SP | ϕ | @ | P | ◇ | ◇ | 0 |
| 0 | 0 | 0 | 1 | ◇ | ◇ | ! | 1 | A | Q | ◇ | ◇ | 1 |
| 0 | 0 | 1 | 0 | ◇ | ◇ | " | 2 | B | R | ◇ | ◇ | 2 |
| 0 | 0 | 1 | 1 | ◇ | ◇ | # | 3 | C | S | ◇ | ◇ | 3 |
| 0 | 1 | 0 | 0 | EOT Ⅎ ② | ◇ | $ | 4 | D | T | ◇ | ◇ | 4 |
| 0 | 1 | 0 | 1 | ◇ | ◇ | % | 5 | E | U | ◇ | ◇ | 5 |
| 0 | 1 | 1 | 0 | ◇ | ◇ | & | 6 | F | V | ◇ | ◇ | 6 |
| 0 | 1 | 1 | 1 | ◇ | ◇ | ' (APOS) | 7 | G | W | ◇ | ◇ | 7 |
| 1 | 0 | 0 | 0 | ◇ | ◇ | ( | 8 | H | X | ◇ | ◇ | 8 |
| 1 | 0 | 0 | 1 | ◇ | ◇ | ) | 9 | I | Y | ◇ | ◇ | 9 |
| 1 | 0 | 1 | 0 | LF ③ | ◇ | * | : | J | Z | ◇ | ◇ | 10 |
| 1 | 0 | 1 | 1 | ◇ | ◇ | + | ; | K | [ | ◇ | ◇ | 11 |
| 1 | 1 | 0 | 0 | FF ④ | ◇ | , | < | L | \ | ◇ | ◇ | 12 |
| 1 | 1 | 0 | 1 | CR ◇ ⑤ | ◇ | - | = | M | ] | ◇ | ◇ | 13 |
| 1 | 1 | 1 | 0 | SO ⑥ | ◇ | . | > | N | | ◇ | ◇ | 14 |
| 1 | 1 | 1 | 1 | SI ⑥ | ◇ | / | ? | O | _ ⑦ | ◇ | ◇ | 15 |

NON PRINT ① SPACE ② PRINT - Ⅎ

NON PRINT ③ LINE FEED CONTROL FUNCTION (RESTORE LEFT MARGIN AND ADVANCE PAPER ONE LINE). IF PRINT DATA HAS BEEN RECEIVED PRINT OPERATION SHALL BE PERFORMED FIRST TO PREVIOUS LINE.

NON PRINT ④ FORM FEED CONTROL FUNCTION ADVANCE PRINTED MESSAGE PAST PRINTHEAD SO THAT MESSAGE CAN BE READ THROUGH PRINTER WINDOW. ADVANCE SHALL BE 21 CHARACTER LINES.

⑤ NO FORMAT EFFECT

⑥ SO AND SI CONTROL FUNCTIONS. SO AND SI SHALL DELIMIT THE AREAS BY UNDERSCORING CHARACTERS RECEIVED BETWEEN THE SO AND SI

⑦ UNDERLINE–CODE 1011111 SHALL BE PLACED IN THE CHARACTER AREA (LOWEST)

TABLE 4-3. PRINTER FAULT ISOLATION

| ITEM | TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|---|
| 1 | PWR-ON lamp does not light | Circuit breaker tripped | Reset circuit breaker |
| | | Lamp burned out | Replace lamp |
| | | Power supply defective | Replace power supply |
| | | No 115 VAC power input | Check input power source |
| | | Defective RFI filter | Replace Harness Assy |
| 2 | OPR lamp does not light | Door open | Close door |
| | | Head Short | Check or replace paper cassette |
| | | Defective lamp | Replace lamp |
| | | DC power supply voltage low or absent | Replace power supply |
| | | Defective logic module | Replace logic module |
| 3 | SLEW lamp does not light | Defective lamp | Replace lamp |
| 4 | ACK lamp does not light | Defective lamp | Replace lamp |
| 5 | Paper illumination lamp does not light | Defective lamp | Replace lamp |
| 6 | Pushing SLEW button does not eject paper | Defective logic module | Replace logic module |
| | | Defective Motor Drive PCB | Replace Motor Driver PCB |
| 7 | Depressing TEST switch does not result in output of self-test record | Defective logic module | Replace logic module |
| | | Defective Common Driver PCB | Replace Common Driver PCB |
| | | Defective paper state sensing finger | Replace print head module |
| 8 | Depressing TEST switch results in ejecting blank paper | Defective logic module | Replace logic module |
| | | Defective Common Driver PCB | Replace Common Driver PCB |
| | | Defective paper state sensing finger | Replace print head module |

TABLE 4-3. (Continued)

| ITEM | TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|---|
| 9 | Self-test record missing columns: | Defective finger driver No.: | Replace finger driver No.: |
| | 1–8 | 10 | 10 |
| | 9–16 or 1–16 | 9 | 9 |
| | 17–24 or 1–24 | 8 | 8 |
| | 25–32 or 1–32 | 7 | 7 |
| | 33–40 or 1–40 | 6 | 6 |
| | 41–48 or 1–48 | 5 | 5 |
| | 49–56 or 1–56 | 4 | 4 |
| | 57–64 or 1–64 | 3 | 3 |
| | 65–72 or 1–72 | 2 | 2 |
| | 73–80 or 1–80 | 1 | 1 |
| 10 | Self-test record prints raster from columns: | Defective finger drive No.: | Replace finger driver PCB No.: |
| | 1–8 | 10 or 9 | 10 then 9 |
| | 1–16 | 9 or 8 | 9 then 8 |
| | 1–24 | 8 or 7 | 8 then 7 |
| | 1–32 | 7 or 6 | 7 then 6 |
| | 1–40 | 6 or 5 | 6 then 5 |
| | 1–48 | 5 or 4 | 5 then 4 |
| | 1–56 | 4 or 3 | 4 then 3 |
| | 1–64 | 3 or 2 | 3 then 2 |
| | 1–72 | 2 or 1 | 2 then 1 |
| | 1–80 | 1 | 1 |
| 11 | Self-test missing a row of dots | Defective logic module | Replace logic module |
| 12 | Self-test record incorrect for every other row | Defective logic module | Replace logic module |
| 13 | Self-test record garbled | Defective logic module | Replace logic module |
| 14 | Self-test record dot or dots missing from a character | Defective logic module | Replace logic module |

TABLE 4-3. (Continued)

| ITEM | TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|---|
| 15 | Self-test record has missing column of dots (same column missing in every line) | Defective print finger | Replace print head module |
| 16 | Self-test record contrast too light | Low 50 VDC power supply<br>Worn common electrode<br>Low head pressure | Replace power supply<br>Replace cassette<br>Increase head pressure |
| 17 | Self-test record continues to run after switch released but does not print | Dry paper<br>Worn common electrode<br>Low head pressure | Replace cassette<br>Replace cassette<br>Increase head pressure |
| 18 | Self-test characters distorted | Defective Motor Driver PCB<br>Low 50 VDC power supply<br>Defective logic module | Replace Motor Driver PCB<br>Replace power supply<br>Replace logic module |
| 19 | Self-test record line spacing not uniform | Defective Motor Driver PCB<br>Low 50 VDC power supply<br>Excessive print head pressure<br>Defective logic module | Replace Motor Driver PCB<br>Replace power supply<br>Adjust head pressure<br>Replace logic module |
| 20 | Self-test record randomly skips lines | Paper in cassette drying out<br>Defective paper state sensor circuitry | Replace cassette<br>Replace common Driver PCB<br>Replace logic module |
| 21 | Any line of characters or symbols missing from self-test record | Defective logic module | Replace logic module |
| 22 | Self-test record missing emphasis | Defective logic module | Replace logic module |
| 23 | Self-test record missing all or part of form feed blank lines | Defective logic module | Replace logic module |

TABLE 4-3. (Continued)

| ITEM | TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|---|
| 24 | Self-test record missing all or part of diamond lines | Defective logic module | Replace logic module |
| 25 | Paper continues to slew after button is released | Dry paper | Replace cassette |
| | | Defective Common Driver PCB | Replace Common Driver PCB |
| | | Defective logic module | Replace logic module |

Section 5

# MAINTENANCE

## 5-1. FAILURE AND PERFORMANCE REPORTS.

The Naval Ship Systems Command no longer requires the submission of failure reports for all equipments (refer to Electronics Installation and Maintenance Book, NAVSHIPS 0967-000-0110) only to the extent required by existing directives. All failures shall be reported for those equipments requiring the use of failure reports.

## 5-2. PREVENTIVE MAINTENANCE.

Preventive maintenance consists of performing on a daily, weekly, and monthly basis, certain mechanical and electrical checks and adjustments, cleaning and inspection. Procedures for performing these preventive maintenance tasks are described in the following paragraphs. The frequency of performance and reference to the applicable paragraphs is provided in tables 5-1, 5-2, and 5-3. Preventive maintenance tables 5-1 through 5-3 list recommended daily, weekly, and monthly preventive maintenance procedures by paragraph references.

## 5-3. PRINTER INSPECTION.

The printer is electronically and mechanically checked and inspected in accordance with the following paragraphs.

## 5-4. ELECTRONIC (FUNCTIONAL) CHECK.

Electronic inspection consists of the following steps:

a. Apply printer power.

b. Check circuit breakers for indication of tripping. Reset and troubleshoot as required.

c. Using self-tests switch, operate printer for approximately 15 seconds.

d. Examine printed record against sample shown in figure 3-3. If any discrepancies occur, refer to table 4-3 for probable causes.

TABLE 5-1. DAILY PREVENTATIVE MAINTENANCE SUMMARY

| ITEM | DESCRIPTION | PARAGRAPH REFERENCE |
|---|---|---|
| 1 | Functional Check | 5-4 |
| 2 | Mechanical Inspection | 5-5 |
| 3 | Cleaning | 5-6 |

TABLE 5-2. WEEKLY PREVENTATIVE MAINTENANCE SUMMARY

| ITEM | DESCRIPTION | PARAGRAPH REFERENCE |
|---|---|---|
| 1 | Functional Check | 5-4 |
| 2 | Mechanical Inspection | 5-5 |
| 3 | Cleaning | 5-6 |

TABLE 5-3. MONTHLY PREVENTATIVE MAINTENANCE SUMMARY

| ITEM | DESCRIPTION | PARAGRAPH REFERENCE |
|---|---|---|
| 1 | Electronic Inspection | 5-4 |
| 2 | Mechanical Inspection | 5-5 |
| 3 | Cleaning | 5-6 |

## 5-5. MECHANICAL INSPECTION.

Mechanical inspection consists of the following steps:

a. Printer cleanliness – using a damp cloth, wipe off any dust, stain, or fingerprints. Remove cassette and, using a vacuum cleaner and damp cloth, clean printer mechanics area of dust or lint.

b. Inspect all mechanical linkage for loose fittings.

## 5-6. PRINTER CLEANING.

The following procedure is established for the purpose of maintaining the highest quality print-out from Printer TT-649/U.

a. PRINTHEAD CLEANING PROCEDURE - Perform the following procedure each time a cassette of paper is used in the printer.

(1) Run the printer continuously in the self-test mode for a period of 60 seconds or more.

(2) Turn printer power off and remove cassette.

(3) Turn printer on left side to facilitate cleaning print-head.

(4) Using industrial tissues (Scott Micro-Wipes, or equivalent) clean water, proceed as follows:

(a) Dip tissue in clean water and apply gently to finger area of print-head.

CAUTION

Do not scrub wipes back and forth or damage to fingers may result.

(b) Continue to clean fingers with damp tissues until all fingers are clean.

(c) Repeat step (a) until fingers appear to be free of all residue.

(d) Using dry tissues, remove any excess water on fingers.

(5) Install cassette in printer and operate in self-test for a period of 30 seconds or more.

(6) Inspect record to see that a good quality of print-out results.

(7) If the print-out is not acceptable repeat steps (1) through (6) above.

b. MONTHLY PROCEDURE - Using soap (FED-STD-536) and water, clean exterior of printer. Particular attention should be paid to the front door which is touched by printed side of the paper. A small amount of the oxide on the paper can rub off when contacting the painted surface of the printer.

## 5-7. REMOVAL AND REPLACEMENT PROCEDURES.

The following paragraphs provide repair information for the various assemblies of the printer. This information includes removal and replacement procedures and parts location illustrations. Figure 5-1 shows parts locations of the four major units comprising the printer.

Removal and replacement procedures are provided only for those assemblies where removal and replacement procedure is not obvious. Note that replacement procedures are not given where replacement is obviously the reverse of removal.

a. LOGIC ASSEMBLY - The following steps describe the procedure for removing the logic assembly. See figure 5-1 for printer main assembly item location.

(1) Loosen quarter-turn fasteners on cover assembly 1A1 and remove cover.

(2) Disconnect plugs P-20 through P-25 from logic assembly by carefully pulling straight out.

(3) Remove the six screws that retain the logic assembly 1A6 within the main assembly.

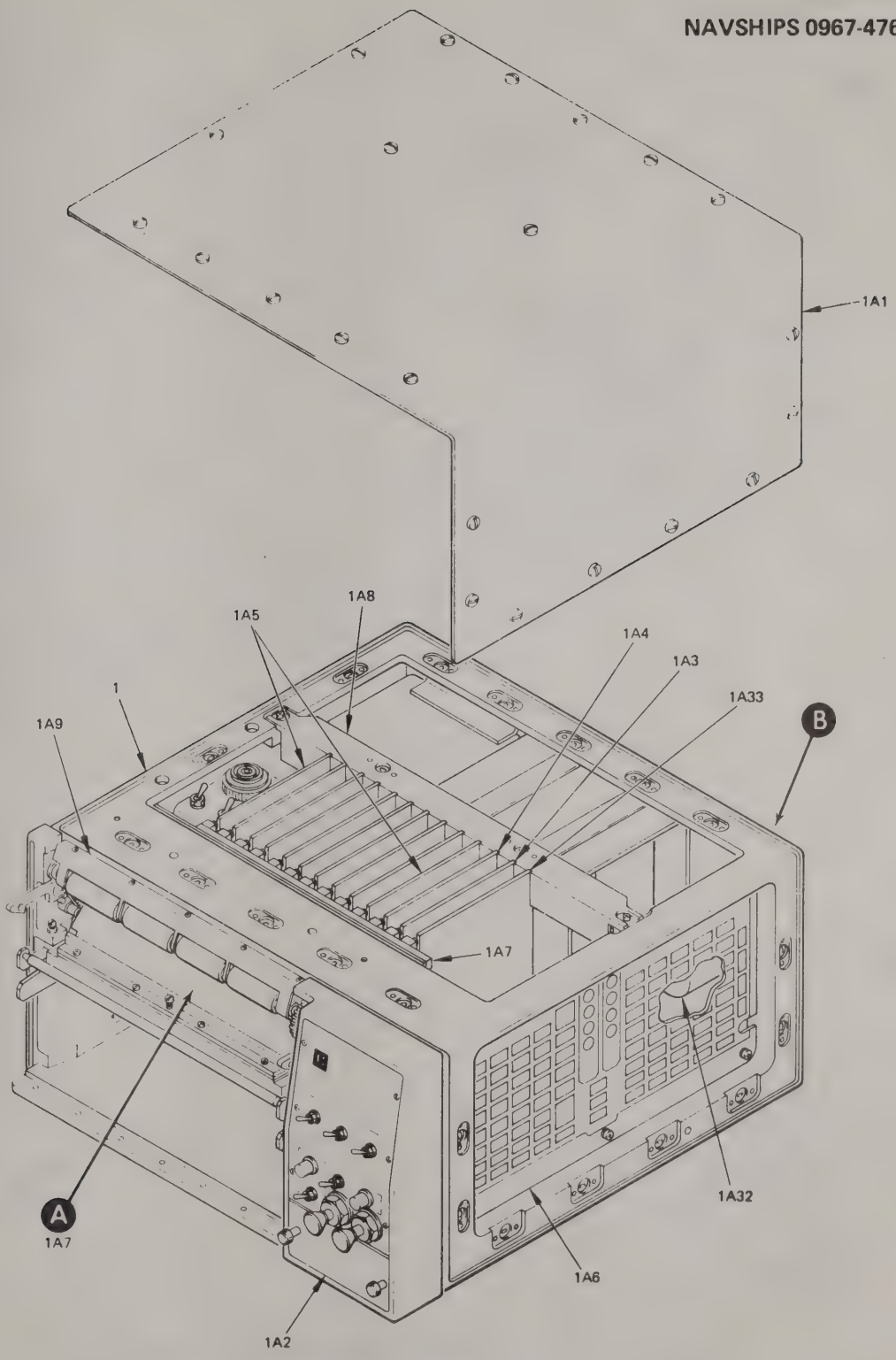



Figure 5-1. Printer TT-649/UY, Exploded View

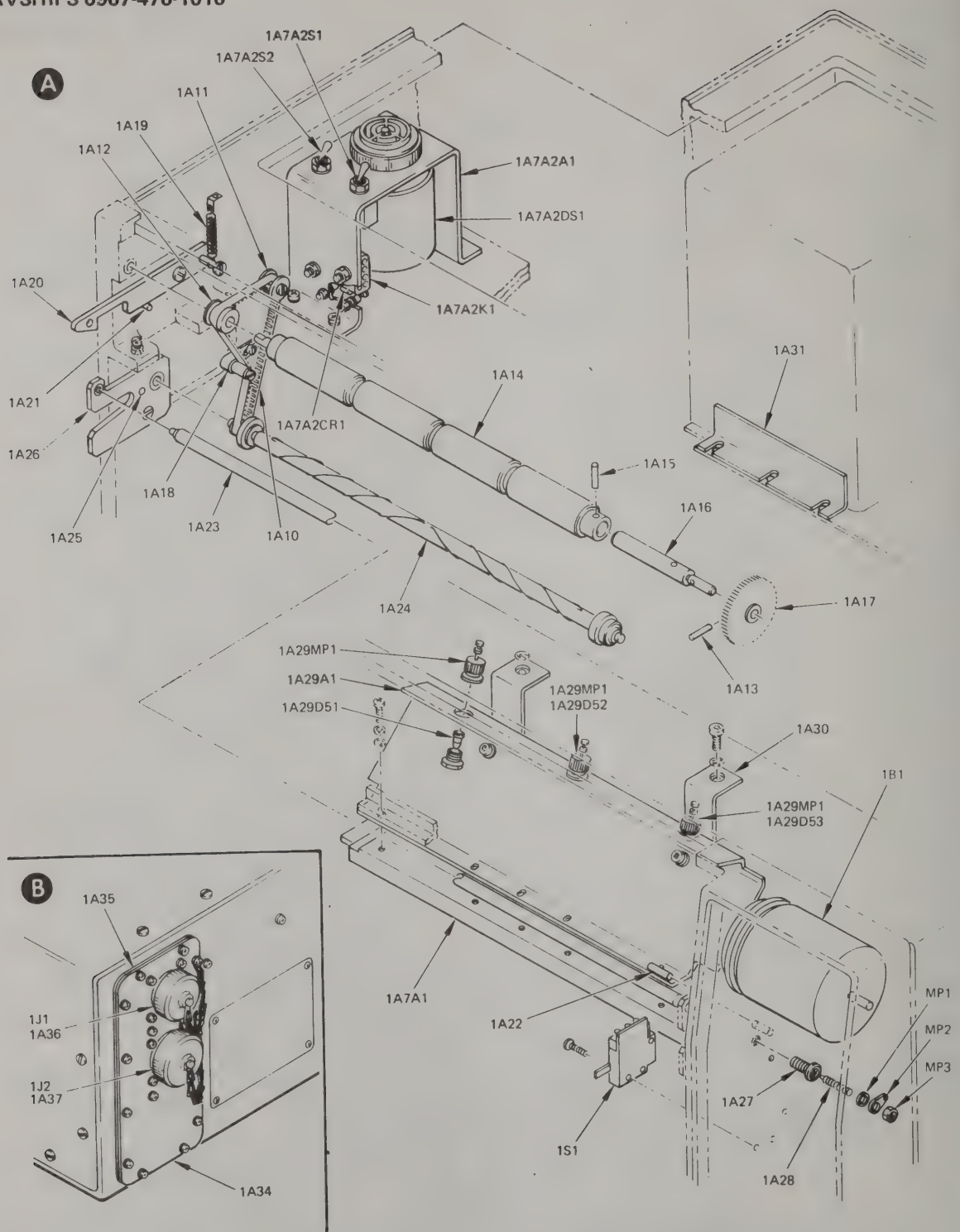



Figure 5-1. Printer TT-649/UY, Exploded View (continued)

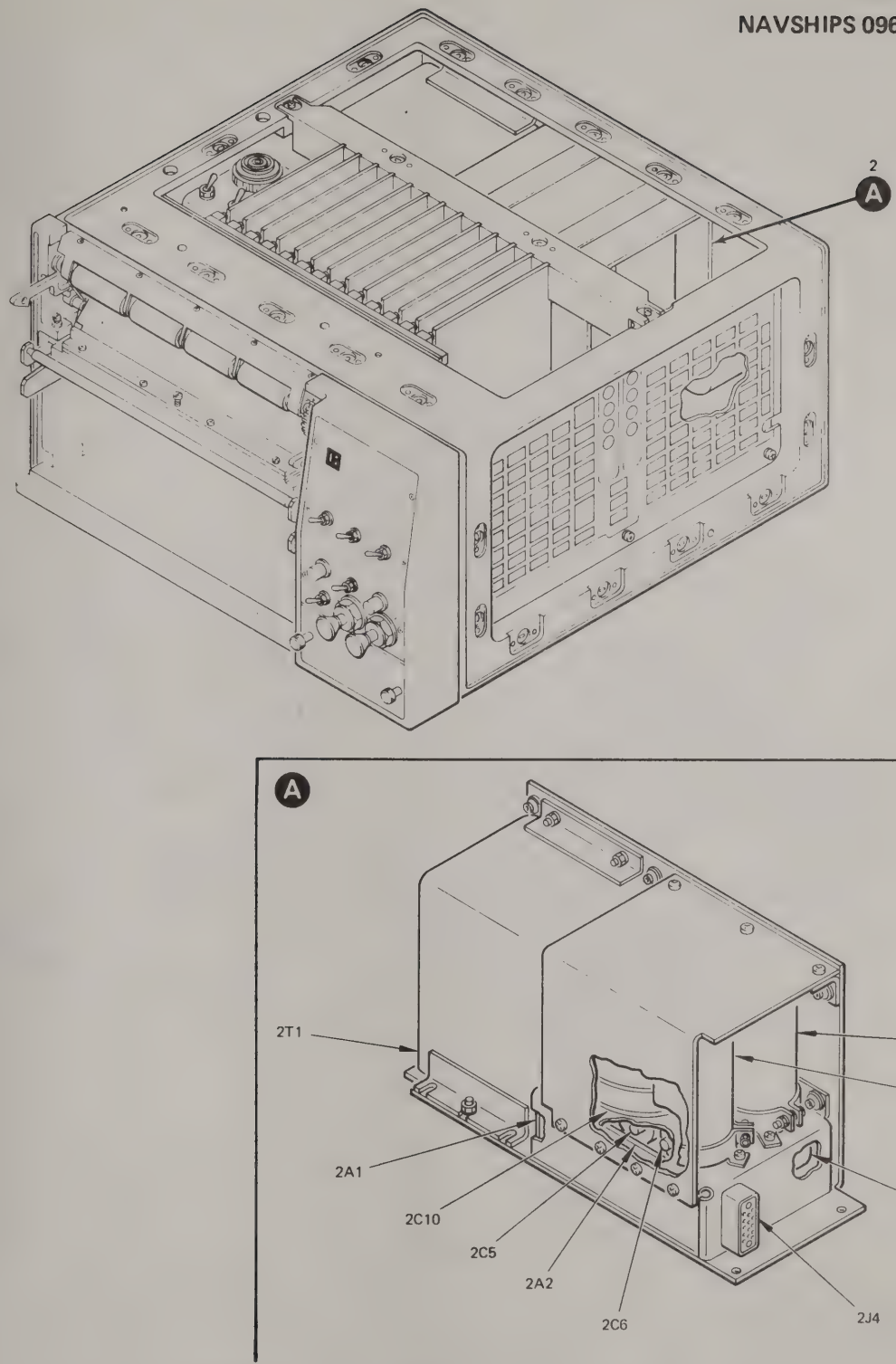



Figure 5-1. Printer TT-649/UY, Exploded View (continued)

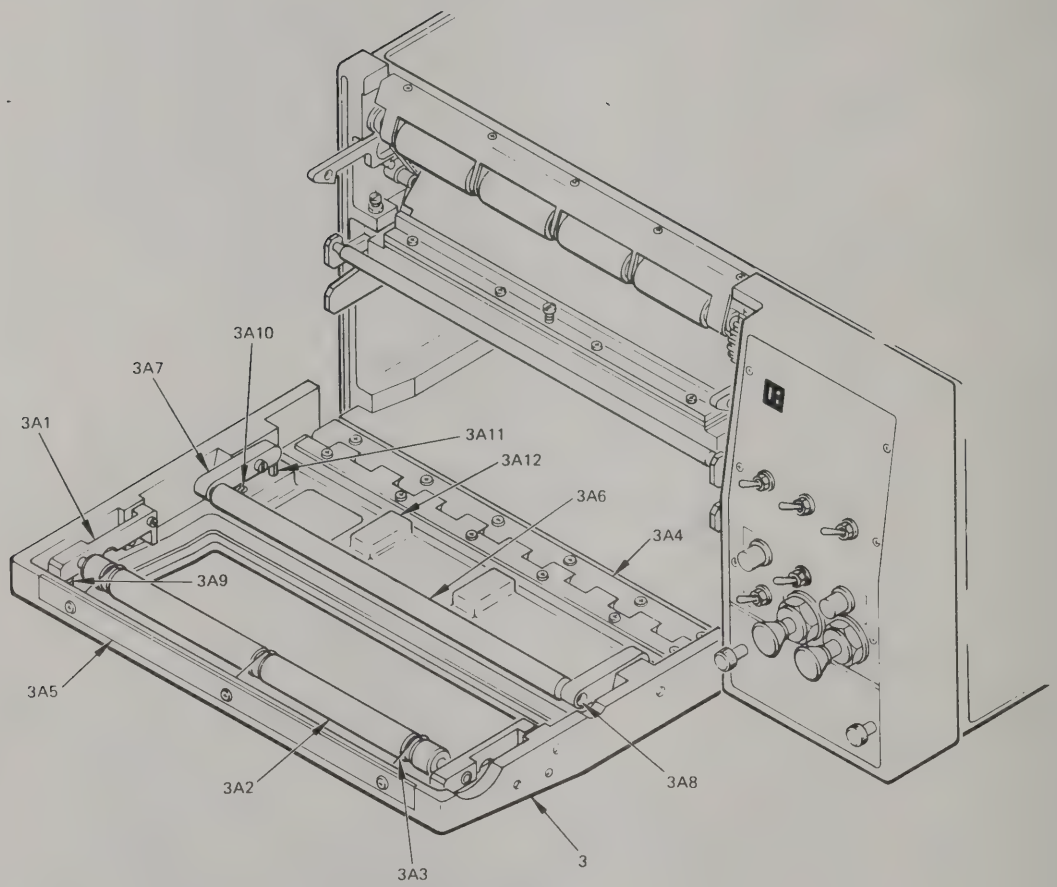



Figure 5-1. Printer TT-649/UY, Exploded View (continued)

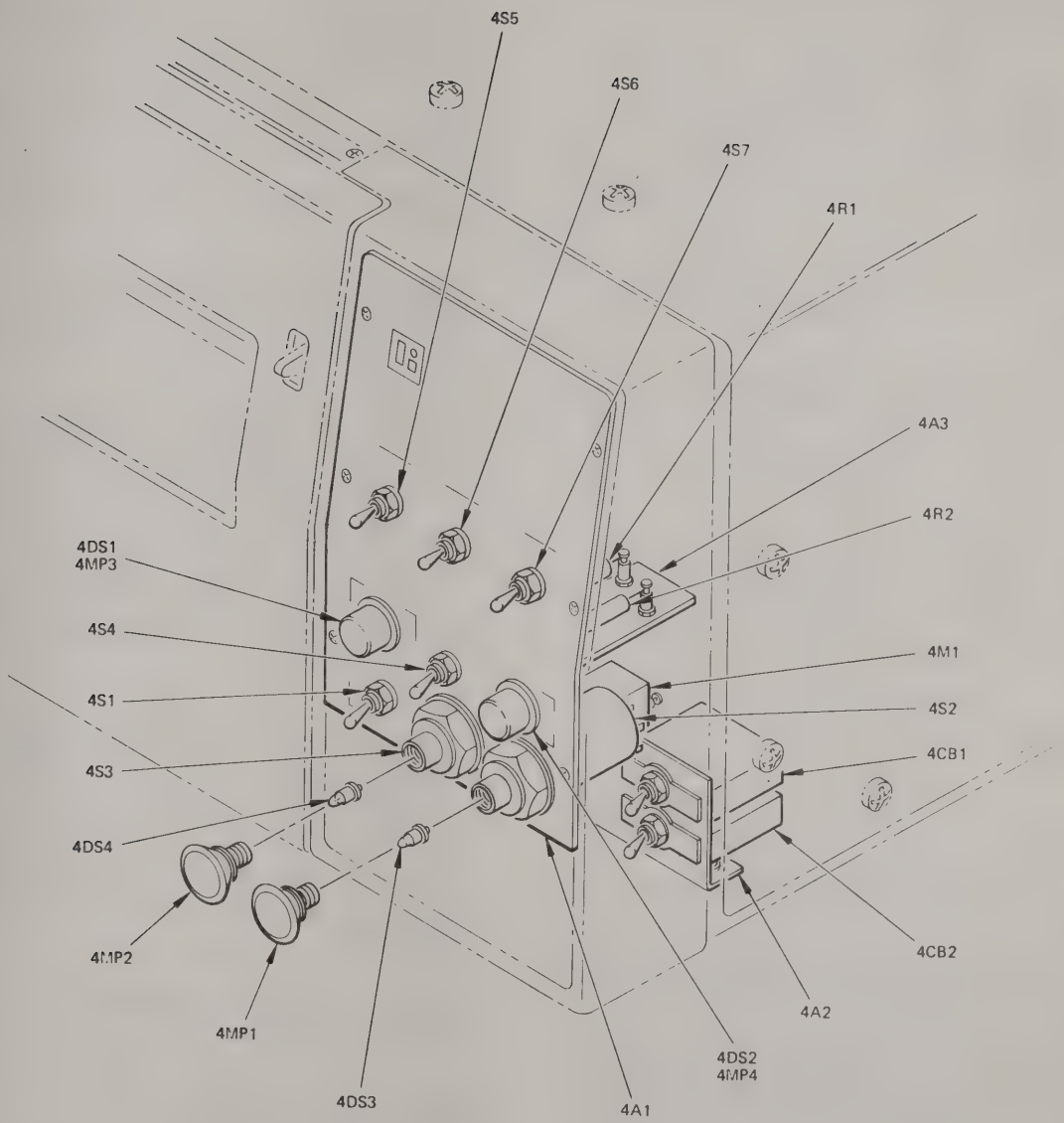



Figure 5-1. Printer TT-649/UY, Exploded View (continued)

(4) Carefully remove logic assembly 1A6 and slide the cables out of the slots in the side.

b. POWER SUPPLY - The following steps describe the procedure for removing the power supply. See figure 5-1 for parts location.

(1) Remove cassette.

(2) Loosen quarter-turn fasteners on cover assembly 1A1 and remove cover.

(3) Remove two screws and remove retainer 1A8.

(4) Remove five screws and retainer 1A32. Screws are removable from inside top of printer.

(5) Remove two jack screws securing harness assembly 1A34.

NOTE

Bottom jack screw can be removed through clearance hole in printer casting located below logic board, approximately four inches from back of casting , and unplug harness supply.

(6) Remove 12 screws from connector panel 1A35.

(7) Remove four screws located in back of panel.

(8) Remove all pc boards 1A3, 1A4 and 1A5 from card cage.

(9) Remove power supply by sliding over and lifting up by handle.

c. PRINT SYSTEM HEAD ASSEMBLY - The following steps describe the procedure for removing the print system assembly. Refer to figure 5-1 for part location.

(1) Loosen quarter-turn fasteners on cover assembly 1A1 and remove cover.

(2) Remove retaining screws and remove lamp bracket assembly 1A30.

CAUTION

Do not remove wire leads to lamp sockets, as leads are long enough to facilitate easy removal and maintenance.

(3) Remove screws from card retainer 1A8.

(4) Remove all pc cards 1A3, 1A4 and 1A5.

(5) Remove screws securing print system assembly 1A7.

NOTE

Do not remove print system guide pins 3A3 from casting flanges (locate one on each side) or print finger retainer.

(6) Loosen drive belt 1A10.

(7) Remove print system assembly 1A7 by moving the card cage to the rear and upward.

NOTE

Carefully remove print head assembly to prevent damage to iron wrap pins, wire leads to pins, or print fingers.

d. MAIN DRIVE ROLLER - The following steps describe the procedure for removing the main drive roller 1A14. Refer to figure 5-1 for parts location.

(1) Remove retaining screws from paper peel-off bracket 1A9.

(2) Remove spring pin 1A15 using drift punch (5/64 inch diameter).

(3) Loosen drive belt take-up (refer to paragraph 5-7-c).

(4) Slide gear 1A17 and stub-shaft assembly 1A16 to the left and into main drive roller 1A14.

NOTE

Do not remove or disassemble gear 1A17 from stub-shaft 1A16.

(5) Slide complete assembly to the right, thus disengaging shaft end from left hand bearing.

(6) Slip belt off drive roller sprocket and remove complete assembly.

e. DRIVE MOTOR - The following steps describe the procedure for removing the drive motor 1B1. Refer to figure 5-1 for parts location.

(1) Remove cover assembly 1A1.

(2) Remove lamp bracket assembly 1A30 following procedure in paragraph 5-7c.

(3) Remove main drive roller 1A14 following procedure in paragraph 5-7.

(4) Remove retaining screws securing control panel 4A1.

CAUTION

Do not remove wire leads, components, or cabling as wiring is long enough to facilitate easy removal and maintenance.

(5) Remove control panel.

NOTE

Cabling is strong enough to support panel during motor removal procedure.

(6) Remove motor leads from terminal strip connecting harness assembly 1A34.

(7) Remove screw and set door latch 1A21 in casting flange.

(8) Remove motor 1B1 by removing mounting screws.

f. COMMON DRIVE ROLLER OR PRINT HEAD ROLLER - The following steps describe the procedure for removing the common drive roller 1A25 or print head roller 1A24. Refer to figure 5-1 for part location.

(1) Remove cassette.

(2) Slacken belt drive (see paragraph 5-7c).

(3) Remove control panel (see paragraph 5-7c).

(4) Remove shoulder screws from roller plate 1A27.

CAUTION

Do not remove spring pins 1A26 before removing shoulder screws.

(5) Remove spring pins 1A26 with a 5/32-inch diameter drift punch.

NOTE

Drift out from inside cassette compartment.

(6) Remove belt 1A10 from idler pulley 1A11. Remove rollers and roller plates by moving toward front of printer.

NOTE

It is not necessary to completely remove belt.

## 5-8. PRINTER ADJUSTMENTS.

The following paragraphs describe printer adjustments necessary during preventive maintenance or repair of the printer. Table 5-4 is a guide to maintenance adjustments – listing symptoms and their probable cause, and referencing paragraphs that describe the related adjustment procedure. When symptoms describe in this table are present, no repair or troubleshooting should be attempted before checking for proper related adjustment.

a. CASSETTE INSTALLATION - A common cause of poor printing is an incorrectly loaded cassette. Before attempting any maintenance

TABLE 5-4. MAINTENANCE ADJUSTMENT GUIDE

| SYMPTOM | PROBABLE CAUSE | REFERENCE PARAGRAPH |
|---|---|---|
| Print density uneven | Common electrode not seated properly | 5-8a |
| | Improper head spacing | 5-8b |
| Line spacing non-uniform | Common electrode not seated properly | 5-8a |
| | Drive belt too tight or too loose | 5-8c |

adjustments determine that the cassette and common electrode are properly installed as defined in Section 3.

b. PRINT SYSTEM ASSEMBLY ADJUSTMENT - The following steps describe the print head adjusting procedure required to obtain proper print density. See figure 5-1 for parts location reference.

(1) Remove cassette assembly from printer.

(2) Loosen nuts and retaining screws located in both sides of print head assembly 1A7A1.

(3) Adjust jack screws for proper head pressure. (Turn clockwise to increase head pressure, counterclockwise to decrease head pressure.)

(4) When desired head pressure is obtained, tighten nuts and retaining screws.

(5) Replace cassette and check printout. Repeat procedure until desired printout is obtained.

CAUTION

Excessive head pressure may stall drive motor. Also, to avoid paper creasing, adjust both sides of print head with equal pressure.

c. BELT DRIVE TAKE-UP PROCEDURE - The following steps describe the belt drive take-up procedure required to obtain uniform line spacing in printout. Refer to figure 5-1 for parts location.

(1) Loosen retaining screw from idler take-up 1A19.

(2) To tighten belt, slide idler take-up 1A19 toward back of machine and tighten retaining screw.

NOTE

To loosen belt, reverse the procedure above. Obtain less than 1/16 inch belt displacement (slack) for normal operation.

Section 6

# PARTS LIST

## 6-1. INTRODUCTION.

This section provides a series of tables which include a list of units and a list of maintenance parts comprising Printer TT-649/UY. The maintenance parts list is accompanied by parts location illustration in Section 5 keyed to each item listed.

## 6-2. LIST OF UNITS.

Table 6-1 provides a listing of units comprising Printer TT-649/UY. The unit numbers are listed for reference purpose only.

## 6-3. PRINTER TT-649/UY PARTS LIST.

Table 6-2 provides a maintenance parts list for Printer TT-649/UH. The parts for each unit are grouped and are listed by reference description sequence conforming to USAS Y32.16-1968. Each item is thus keyed to the appropriate parts location illustration in Section 5.

## 6-4. LIST OF MANUFACTURERS.

Table 6-3 provides a list of manufacturers of parts used in the equipment.

TABLE 6-1. LIST OF UNITS

| UNIT NO. | QTY | NAME OF UNIT | DESIGNATION | COMMON NAME |
|---|---|---|---|---|
| 1 | 1 | Printer Main Assembly | 101792-100 | Printer |
| 2 | 1 | Power Supply Assembly | 101810-100 | Power Supply |
| 3 | 1 | Door Assembly | 101780-100 | Door |
| 4 | 1 | Control Panel Assembly | 101819-100 | Control Panel |

TABLE 6-2. MAINTENANCE PARTS LIST

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| MAIN ASSEMBLY PRINTER | | | |
| 1 | | PRINTER, MAIN ASSEMBLY: Consists of printer main frame, circuit board assemblies, print system assembly, and motor and drive assemblies; mfr 19059; dwg 101792-100 | 5-1 |
| 1A1 | | COVER ASSEMBLY, CONSOLE: Cover for printer main frame; mfr 19059, dwg 101768-101 | 5-1 |
| 1A2 | | COVER ASSEMBLY, PROTECTION CIRCUITS: Cover plate for fuses and circuit breakers; mfr 19059; dwg 101764-101 | 5-1 |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 1A3 | | MOTOR DRIVER ASSEMBLY, PRINTED CIRCUIT BOARD: Printed circuit board with all components assembled for operation; mfr 19059; dwg 101710-101 | 5-1 |
| 1A4 | | COMMON DRIVER ASSEMBLY, PRINTED CIRCUIT BOARD: Printed circuit board with ali components assembled for operation; mfr 19059; dwg 101711-101 | 5-1 |
| 1A5 | | FINGER DRIVER ASSEMBLY, PRINTED CIRCUIT BOARD; Printed circuit board with all components assembled for operation; mfr 19059; dwg 101712-101 | 5-1 |
| 1A6 | | LOGIC BOARD ASSEMBLY; Printed circuit board with all components assembled for operation; mfr 19059; dwg 101837-101 | 5-1 |
| 1A7 | Listed for reference only. Non-replaceable in this application. | PRINT SYSTEM ASSEMBLY; Consists of print head assembly and maintenance panel; mfr 19059; dwg 101863-100 | 5-1 |
| 1A7A1 | | PRINT HEAD ASSEMBLY: Consists of arrays of metallic fingers for dot pattern generation; mfr 19059; dwg 101722-100 | 5-1 |
| 1A7A2 | | BRACKET ASSEMBLY ALARM-MAINTENANCE PANEL: Consists of audible alarm and switches; mfr 19059; dwg 101818-100 | 5-1 |
| 1A7A2A1 | | BRACKET: Consists of sloped 0.80 thick aluminum alloy as per QQ-A-250/11-T6 with bend radii of 0.12 inches, maximum, mfr 19059; dwg 101817 | 5-1 |
| 1A7A2CR1 | | DIODE: JAN type 1N4148 | 5-1 |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 1A7A2DS1 | | ALARM, AUDIBLE: Produces 2800 cycle tone when 28 vdc is applied; mfr 37942; part number SC628AP | 5-1 |
| 1A7A2K1 | | RELAY: DPDT; MS type MS5757/13-033 | 5-1 |
| 1A7A2S1 | | SWITCH, TOGGLE: DPDT switch; MS 27717-23 | 5-1 |
| 1A7A2S2 | | SWITCH, TOGGLE: Same as 1A7A258 | 5-1 |
| 1A8 | | CARD RETAINER: Consists of 6061-T6 aluminum alloy angle conforming to QQ-A-200/8C 12.88 inches by 1.00 inches; 15 card retaining grooves 0.09 inch wide and 0.08 inch deep; 1/4-turn fastener receptacles; mfr 19059; dwg 101777 | 5-1 |
| 1A9 | | BRACKET, PEEL-OFF: Consists of corrosion-resistant steel 0.020 inch thick conforming to QQ-5-766C, Condition A; mfr 19059; dwg 101788 | 5-1 |
| 1A10 | | BELT: 0.187 inch wide; mfr 23266; part number 102T(40DP) | 5-1 |
| 1A11 | | IDLER PULLEY: For belt-driven paper drive system; mfr 23266; part number 15LT-187 type 3-FB | 5-1 |
| 1A12 | | PULLEY: Same as 1A11; mfr 23266; part number 15LT-187B type FC | |
| 1A13 | | SPRING PIN: MS type MS171466 | 5-1 |
| 1A14 | | DRIVE ROLLER: Consists of four silicon rubber sections molded to 0.500 diameter aluminum alloy tube conforming to QQ-A-100/8C and rod insert for mounting of pulley; mfr 19059; dwg 101751 | 5-1 |
| 1A15 | | SPRING PIN: MS type MS171496 | 5-1 |
| 1A16 | | DRIVE ROLLER, GEAR SHAFT: Consists of 0.312 inch diameter aluminum alloy conforming to QQ-A-225/8C; mfr dwg 101752 | 5-1 |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 1A17 | | SPUR GEAR, HELICAL: Precision/right-hand gear; constructed of DELRIN 500 in conformance with FED LP 392; helix angle = 20°; pressure angle = 20°; diametered pitch (normal) 72, number teeth = 85; mfr 19059; dwg 101716 | 5-1 |
| 1A18 | | IDLER, TAKE-UP: Used to apply proper tension to belt; constituted of 6061-T6 aluminum alloy conforming to QQ-A-200/B-T6; mfr 19059; dwg 101857 | 5-1 |
| 1A19 | | EXTENSION SPRING: Door latch spring; mfr 84830; part number LE-0318B-00 | 5-1 |
| 1A20 | | DOOR LATCH: Consists of 0.5 by 3.48 inch corrosion resistant, bar flat steel 0.125 inch thick conforming to QQ-S-764C, class 303, condition A, mfr 18059; dwg 102204 | 5-1 |
| 1A21 | | SPRING PIN: MS type MS171586 | 5-1 |
| 1A22 | | SPRING PIN: MS type MS171587 | 5-1 |
| 1A23 | | ROLLER, PRINT HEAD: Consists of solid 0.31 by 9.66 (overall) aluminum alloy 6061-T6 conforming to QQ-A-225/8C; anodized as per MIL-A-8625, type III, class 1, black; mfr 19059, dwg 101773 | 5-1 |
| 1A24 | | ROLLER ASSEMBLY, COMMON DRIVE: Consists of machined 0.500 by 9.66 inch (overall) solid aluminum alloy, C061-T6 conforming to QQ-A-225/8; chemical film finish as per MIL-C-5541, type II, grade C, class 2 (yellow); wrapped with symmetrical spiral of 0.051 inch aluminum alloy wire 1100-0 conforming to QQ-A-225/1; fitted with 0.622 inch diameter Polyurethane 20/13 bushing and naval brass belt pulley; mfr 19059; dwg 101737-100 | 5-1 |

TABLE 6-2. (Continued)

| REF. DESIG | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 1A25 | | SPRING PIN: MS type MS171585 | 5-1 |
| 1A26 | | ROLLER PLATE: Supports print head roller (1A24) and common drive roller (1A25); consists of machined aluminum alloy 6061-T651 conforming to QQ-A-200/11d; anodized as per MIL-C-5541A, type II, grade C, class 2; mfr 19001; dwg 101722 | 5-1 |
| 1A27 | | BUSHING, COMMON CONTACT: Consists of DELRIN 500 material bushing measuring 0.44 inch diameter (overall) by 4.0 inches in length, conforming to FED-STD-LP392A, type 1, class 1; mfr 19059; dwg 101798 | 5-1 |
| 1A28 | | SPRING PLUNGER: Spring-loaded plunger in 10-32 threaded case, 0.75 inch in length. Cadmium plated plunger nose extends 1/8 inch normally and fully compressed by 2.7 lbs end pressure; mfr 01226; part number S-53-001-03 | 5-1 |
| MP1 | | WASHER, FLAT NO. 10: MS type MS15795-842 | 5-1 |
| MP2 | | LUG, SOLDER NO. 10: MS type MS1414-10 | 5-1 |
| MP3 | | NUT, PLAIN HEX: MS type MS25082-3 | 5-1 |
| 1A29 | | BRACKET ASSEMBLY, LAMP: For paper illumination light and lamp flange; mfr dwg 101755-100 | 5-1 |
| 1A29A1 | | BRACKET LAMP: Consists of sloped 0.62 inch thick 6061-T4 aluminum alloy conforming to QQ-A-250/11-T4; 45° angle; drilled three 0.358 inch diameter holes for lamp installation; five 0.25 by 0.15 inch slots for installation; mfr 19059; dwg 161755 | 5-1 |
| 1A29MP1 | | LAMP, 14-VOLT, MINIATURE FLANGE: Supports illumination lights, mfr 08806; part number 330 | 5-1 |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 1A29D51 | | LAMP, ILLUMINATION: Consits of 14-volt, 0.80 ma incandescent lamp for paper illumination; mfr 08006; part number 855 RUI-330 | 5-1 |
| 1A29D52 | | LAMP, ILLUMINATION: Same as 1A30D51 | 5-1 |
| 1A29D53 | | LAMP, ILLUMINATION: Same as 1A30D51 | 5-1 |
| 1A30 | | HOLDER, LAMP BRACKET: Consits of sloped 0.62 inch thick aluminum alloy 6061-54 conforming to QQ-A-250/11-T4; anodized as per MIL-C-5541A, type II, grade C, class 2 (yellow). Press-fitted, floating nut with 6-32 thread; mfr 19059; dwg 101862. | 5-1 |
| 1S1 | | DOOR SWITCH: MS type MS16106-4 | 5-1 |
| 1B1 | | MOTOR, 115 vac, 60-400 Hertz, four-phase controlled stepper motor; mfr 19059; dwg 101707 | 5-1 |
| 1A31 | | TRANSFORMER RETAINER: Consists of 0.188 inch thick aluminum alloy 6061-T6 conforming to QQ-A-250/11; 0.44 by 3.88 inches; anodized as per MIL-C-5541, type II, grade C, class 2 (yellow); mfr 19059; dwg 102177 | 5-1 |
| 1A32 | | HARNESS ASSEMBLY, INTERFACE: Consists of a wire harness which carries input-output signals from external connector J2 to connectors and I/O interface terminal braids within the printer; mfr 19059; dwg 101833-100 | 5-1 |
| 1A33 | | HARNESS ASSEMBLY, INTERCONNECTION: Consists of a wire harness which carries internally-generated signals throughout the printer; mfr 19059, dwg 101834-100 | 5-1 |
| 1A34 | | PLATE, MOUNTING, REAR CONNECTORS: Supports connector J1 and J2 and consists of 0.080 inch thick aluminum alloy 6061-T6 conforming to QQ-A-250/11-T6 measuring 3.25 by 6.81 inches; mfr 19059; dwg 101838 | 5-1 |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 1A35 | | RFI GASKET, REAR CONNECTOR PLATE: Consists of 0.38 inch by 0.055 inch thick polished silicone monel shaped to fit printer chassis and 1A35; contains 12, 0.19 mil diameter holes for attaching hardware, mfr 19059; dwg 101841 | 5-1 |
| 1A36 | | CAP, CONNECTOR: MS type MS25043-22C | 5-1 |
| 1A37 | | CAP, CONNECTOR: MS type MS3180-20 | 5-1 |
| 1J1 | | CONNECTOR: MS type MS3100E22 | 5-1 |
| 1J2 | | CONNECTOR: MS type MS3120F20 | |
| MAIN ASSEMBLY POWER SUPPLY | | | |
| 2 | | POWER SUPPLY, MAIN ASSEMBLY: Consists of subassemblies and parts to provide required voltages for printer operation; mfr 19059; dwg 101810 | 5-1 |
| 2A1 | | PRINTED CIRCUIT BOARD ASSEMBLY: Consists of printed circuit board containing power supply circuit parts; mfr 19059, dwg 101814 | 5-1 |
| 2A2 | | HEAT SINK ASSEMBLY: Consists of 0.125 inch thick aluminum alloy 6063-T52 angle measuring 4.31 inches in lengths and 1.5 inches in width per each angle. Contains circuit parts for power supply operation; mfr 19059; dwg 101845-100 | 5-1 |
| 2C1 to 2C3 | | Not used | |
| 2C4 | | CAPACITOR: 37,000 microfarads; 15-volts; mfr part number 500-1930-01 | 5-1 |
| 2C5 | | CAPACITOR: 3,600 microfarads; 25 volts; mfi 00853; part number 500-1945-01 | 5-1 |
| 2C6 | | CAPACITOR: Same as 2C5 | 5-1 |
| 2C7 | | CAPACITOR: 6,500 microfarads, 15-volts; mfr 00853; part number 500-1927-01 | 5-1 |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 2C8 to 2C9 | | Not used | |
| 2C10 | | CAPACITOR: 16,000 microfarads; 75 volts; mfr 00853; part number 500-1978-01 | 5-1 |
| 2C11 to 2C12 | | Not used | |
| 2C13 | | CAPACITOR: 22,000 microfarads; 25 volts; mfr 00853; part number 500-1948-01 | |
| 2J1 to 2J3 | | Not used | |
| 2J4 | | CONNECTOR: 20 pin male connector; mfr 81312; part number XAC20PF1000 | 5-1 |
| 2T1 | | TRANSFORMER: Power transformer; type TF4VX02YY; five secondary outputs; mfr 19059; dwg 101815-600 | 5-1 |
| DOOR ASSEMBLY | | | |
| 3 | | DOOR ASSEMBLY: Consists of subassemblies required to guide recording paper as it moves during the recoding process and secures the front of the printer; mfr ; dwg 101780 | 5-1 |
| 3A1 | | ARM DRIVER IDLER: Consists of 6061-T6 aluminum alloy measuring 0.69 inch wide, 0.244 inch thick and 2.5 inches long; mfr 19059; dwg 101724 | 5-1 |
| 3A2 | | ROLLER, RUBBER IDLER DOOR: Consists of a knurled 0.562 inch diameter 6061-T6 aluminum alloy rod conforming to QQ-A-225/8C equipped with four, silicone rubber covers measuring 9.51 inches in length: mfr 19059; dwg 101978 | 5-1 |
| 3A3 | | GUIDE, PAPER: Consists of shaped 0.020 inch corrosion resistant steel wire conforming to QQ-W-423, Form I, COMP 302, condition B; mfr 19059; dwg 101973 | 5-1 |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 3A4 | | HINGE, DOOR: Door hinge measuring 9.75 inches long, 1.25 inches wide, with six 0.140 inch diameter holes and six 0.150 inch diameter holes for installation; constructed of corrosion resistant steel 0.040 inch thick conforming to MS35822-2C; mfr 19059, dwg 101728 | 5-1 |
| 3A5 | | CUTTER, PAPER: Consists of 0.020 inch thick strip of corrosion resistant steel 0.5 inch thick, 9 inches long, with serrated edge; mfr 19059; dwg 101732 | 5-1 |
| 3A6 | | ROLLER, DOOR, LOWER: Consists of machined 6061-T6 aluminum alloy rod conforming to QQ-A-225/8C; measuring 9.03 inches in length and 0.40 inch in diameter, mfr 19059; dwg 101766 | 5-1 |
| 3A7 | | ARM, DOOR, LOWER: Consists of a flat cord-shaped bar of 6061-T6 aluminum alloy conforming to QQ-A-200/8.T6 with one 0.2493 inch diameter hole and one 0.189 inch diameter hole; used to support 3A6; mfr 19059; dwg 101767 | 5-1 |
| 3A8 | | BEARING, BALL: Press fitted into 3A1 for support to 3A2; mfr ; part number SSRI-418LL-ABEC-7 | 5-1 |
| 3A9 | | SPRING, UPPER: Used for positive pressure on door latch; mfr 84830; part number LC-026B-12 | 5-1 |
| 3A10 | | SPRING, LOWER: Same as 3A9; mfr 84830; part number LC-018B-9 | 5-1 |
| 3A11 | | PIN, SPRING: MS type MS171586 | |
| 3A12 | | DECAL, PAPER ROUTING: Consists of 1.75 by 2.5 inch foil 2NT-CT sheet with paper routing schematic; mfr 19059; dwg 101918 | 5-1 |
| CONTROL PANEL ASSEMBLY | | | |
| 4 | | PANEL ASSEMBLY, CONTROL: Consists of switches, controls and indicators required to operate the printer; mfr 19059; dwg 101819-100 | |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 4A1 | | PANEL CONTROL: Consists of 6061-T6 aluminum alloy 6061-T6 conforming to QQ-A-250/11-T6 measuring 3.68 inches wide; 5.18 inches long. Panel contains five drilled holes 0.257 inch in diameter, two holes 0.5 inch in diameter; two holes 0.64 inch in diameter; and six 0.136 inch diameter holes, mfr 19059; dwg 101819 | |
| 4A2 | | BRACKET, BRAKER/TIME METER: Consists of 6061-T6 aluminum alloy angle conforming to QQ-A-250/11-T6; drilled with two holes 0.290 inch in diameter for installation; two holes 0.290 inch in diameter for circuit breaker placement, one 0.620 inch square for time meter placement, and two 0.116 inch diameter holes for time meter installation; mfr 19059; dwg 101806 | |
| 4A3 | | BRACKET, RESISTOR: Consists of drilled, flat, L-shaped 6061-T4 aluminum alloy with an 0.5 inch diameter hole for switch placement and four 0.094 inch diameter holes for resistor leads; mfr 19059; dwg 101923 | |
| 4CB1 | | BREAKER, CIRCUIT: MIL type M390019/1-47 | |
| 4CB2 | | BREAKER, CIRCUIT: Same as 4CB1 | |
| 4DS1 | | LAMP: DC incandescent lamp T1-3/4, mfr 08806; part number GE-327 | |
| 4DS2 | | LAMP: Same as DS1 | |
| 4DS3 | | LAMP: DC incandescent lamp T1-3/4; mfr 08806; part number GE3B0 | |
| 4DS4 | | LAMP: Same as DS3 | |
| 4M1 | | METER, TIME: Elapsed time meter; mfr 82227; part number K49201-P6-2 | |
| 4MP1 | | LENS, SLEW: MIL type lens; yellow; MS22885/4-001, conforming to MIL-STD-242E; dwg 101865 | |

TABLE 6-2. (Continued)

| REF. DESIG. | NOTES | NAME AND DESCRIPTION | FIG. NO. |
|---|---|---|---|
| 4MP2 | | LENS, ACK: Same as 4MP1 | |
| 4MP3 | | LENS-HOLDER: MIL type; part number LHBLC12WT conforming to MIL-L-3661 | |
| 4MP4 | | LENS-HOLDER: Same as 4MP3 | |
| 4R1 | | RESISTOR: 18 ohm, 5 watt, 5%; series 99; mfr 44655; part number 4567 | |
| 4R2 | | RESISTOR: 10K, 1/4 watt, 5%; MIL type R607GF1035 conforming to MIL-R-11 | |
| 4S1 | | SWITCH, TOGGLE: MS type MS27717-23 | |
| 4S2 | | SWITCH, HOUSING: MS type MS22855/ 8-001 conforming to MIL-S-22885/8 | |
| 4S3 | | SWITCH, HOUSING: Same as 4S2 | |
| 4S4 | | SWITCH, TOGGLE: MS type MS27716-26 | |
| 4S5 | | SWITCH, TOGGLE: MS type MS27716-21 | |
| 4S6 | | SWITCH, TOGGLE: MS type MS27716-23 | |
| 4S7 | | SWITCH, TOGGLE: Same as 4S6 | |

TABLE 6-3. LIST OF MANUFACTURERS

| MFR CODE | NAME | ADDRESS |
|---|---|---|
| 01226 | Vlier Engineering Corporation | |
| 08806 | General Electric Corporation | |
| 23266 | Secs, Incorporated | |
| 37942 | Mallory | |
| 44655 | Ohmite Mfg. Co. | |
| 82227 | A.W. Hayden | |
| 84830 | Lee Spring Company | |
| 23589 | NMB | |
| 00853 | Sangamo Electric Co. | |
| 81312 | Winchester Electronics Co. | |
| 08717 | Sloan Co. | |

USER ACTIVITY TECHNICAL MANUAL COMMENT SHEET
NAVSHIPS 5600/2(REV.9/67)
(Formerly NAVSHIPS 4914)
(COG I - 11-DIGIT STOCK NUMBER: 0105-503-9850)

NAVSHIPS NO. _____

VOLUME NO. _____

(Fold on dotted line on reverse side, staple, and mail to NAVSEC)

PROBLEM AREA:

# APPENDIX A

## SUPPLEMENTAL DRAWINGS

This appendix contains supplement drawings for the Teleprinter TT-675/T in the order listed below:

| Drawing Number | Title |
|---|---|
| 101804-860 | Wiring Assembly Instructions |
| 101833-100 | Assembly, Interface Harness |
| 101834-100 | Assembly, Interconnection Harness |
| 101851-861 | Wire List, Power Supply |
| 102412-860 | Wire List, Maintenance Panel |
| 102400-300 | TT-649/UY Line Printer-Top Drawing |
| 102410-860 | Logic Wire List |
| 101710-320 | Schematic, Motor Driver P. C. B. |
| 101711-320 | Schematic, Common Driver P. C. B. |
| 101712-320 | Schematic, Finger Driver P. C. B. |
| 101755-100 | Assembly, Lamp Bracket |
| 101814-320 | Schematic, Power Supply |
| 101851-320 | Interconnection Diagram, Power Supply |
| 101709-320 | Schematic, Mother Board |
| 101792-340 | Functional Block Diagram |
| 102400-100 | Printer, Main Assembly |
| 102400-350 | TT-649/UY Drawing Tree |
| 102404-320 | Schematic, Interconnection |
| 102410-103 | Logic Board Assembly |
| 102410-320 | Logic Diagram (SR) Interface Self-Test Logic |

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| D | 0491-C1 | REVISED & REDRAWN | 2 APR 71 | |

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (I) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (II) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | X | X | | | |

MIL - D - 1000 INTENDED USE CATEGORY

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOL. .XX ± .__, .XXX ± .__,
FRACT. ± .030 ANG. ± 0°30'

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001

CONTRACT NO.

| | | |
|---|---|---|
| DRAWN | G. Johnson | 3-11-71 |
| CHECK | M. Platupe | 3-12-71 |
| ELEC. | | |
| MECH | | |
| DESIGN | | |
| APPR: | | |

APPROVED D. S. Dimitri 3/23/71

APPROVED

101863-100 T-649/UV
NEXT ASSY | USED ON
APPLICATION

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

# WIRING ASSEMBLY INSTRUCTIONS

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | A | 101804-860 | D |
| SCALE NONE | WEIGHT | | SHEET 1 OF 13 |

| MOTHER BOARD WIRING | | | | | |
|---|---|---|---|---|---|
| FROM | TO | FROM | TO | FROM | TO |
| J5-7 | J6-3 | J7-30 | J7-32 | J15-28 | J16-28 |
| J5-9 | J6-5 | J7-43 | J7-5 | J16-28 | J17-28 |
| J5-11 | J6-14 | J7-5 | J8-2 | J8-25 | J9-25 |
| J5-41 | J6-44 | J8-2 | J9-2 | J9-25 | J10-25 |
| J5-43 | J6-46 | J9-2 | J10-2 | J10-25 | J11-25 |
| J5-46 | J8-1 | J10-2 | J11-2 | J11-25 | J12-25 |
| J5-46 | J9-1 | J11-2 | J12-2 | J12-25 | J13-25 |
| J5-48 | J10-1 | J12-2 | J13-2 | J13-25 | J14-25 |
| J5-48 | J11-1 | J13-2 | J14-2 | J14-25 | J15-25 |
| J5-50 | J12-1 | J14-2 | J15-2 | J15-25 | J16-25 |
| J5-50 | J13-1 | J15-2 | J16-2 | J16-25 | J17-25 |
| J5-45 | J14-1 | J16-2 | J17-2 | J8-29 | J8-30 |
| J5-45 | J15-1 | J7-42 | J8-5 | J9-29 | J9-30 |
| J5-47 | J16-1 | J7-44 | J17-32 | J10-29 | J10-30 |
| J5-47 | J17-1 | J7-48 | J7-50 | J11-29 | J11-30 |
| J6-1 | J6-2 | J7-50 | J8-28 | J12-29 | J12-30 |
| J6-2 | J6-10 | J8-28 | J9-28 | J13-29 | J13-30 |
| J6-10 | J6-12 | J9-28 | J10-28 | J14-29 | J14-30 |
| J6-12 | J6-28 | J10-28 | J11-28 | J15-29 | J15-30 |
| J6-28 | J6-30 | J11-28 | J12-28 | J16-29 | J16-30 |
| J6-30 | J6-32 | J12-28 | J13-28 | J17-29 | J17-30 |
| J6-32 | J7-28 | J13-28 | J14-28 | | |
| J7-28 | J7-30 | J14-28 | J15-28 | | |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 1 | | | 26 | J17-7 | 5-1 |
| 2 | J17-32 | 1-1 | 27 | J17-21 | 5-2 |
| 3 | J17-44 | 1-2 | 28 | J17-12 | 5-3 |
| 4 | J17-37 | 1-3 | 29 | J17-6 | 5-4 |
| 5 | J17-31 | 1-4 | 30 | J17-36 | 5-5 |
| 6 | J17-16 | 1-5 | 31 | | |
| 7 | | | 32 | J17-47 | 6-1 |
| 8 | J17-15 | 2-1 | 33 | J17-41 | 6-2 |
| 9 | J17-9 | 2-2 | 34 | J17-35 | 6-3 |
| 10 | J17-17 | 2-3 | 35 | J17-20 | 6-4 |
| 11 | J17-39 | 2-4 | 36 | J17-11 | 6-5 |
| 12 | J17-33 | 2-5 | 37 | | |
| 13 | | | 38 | J17-3 | 7-1 |
| 14 | J17-46 | 3-1 | 39 | J17-19 | 7-2 |
| 15 | J17-38 | 3-2 | 40 | J17-49 | 7-3 |
| 16 | J17-14 | 3-3 | 41 | J17-43 | 7-4 |
| 17 | J17 8 | 3-4 | 42 | J17-50 | 7-5 |
| 18 | J17-22 | 3-5 | 43 | | |
| 19 | | | 44 | J17-42 | 8-1 |
| 20 | J17-13 | 4-1 | 45 | J17-10 | 8-2 |
| 21 | J17-48 | 4-2 | 46 | J17-4 | 8-3 |
| 22 | J17-40 | 4-3 | 47 | J17-18 | 8-4 |
| 23 | J17-34 | 4-4 | 48 | J17-5 | 8-5 |
| 24 | J17-45 | 4-5 | 49 | | |
| 25 | | | 50 | J16-32 | 9-1 |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 51 | J16-44 | 9-2 | 76 | J16-12 | 13-3 |
| 52 | J16-37 | 9-3 | 77 | J16-6 | 13-4 |
| 53 | J16-31 | 9-4 | 78 | J16-36 | 13-5 |
| 54 | J16-16 | 9-5 | 79 | | |
| 55 | | | 80 | J16-47 | 14-1 |
| 56 | J16-15 | 10-1 | 81 | J16-41 | 14-2 |
| 57 | J16-9 | 10-2 | 82 | J16-35 | 14-3 |
| 58 | J16-17 | 10-3 | 83 | J16-20 | 14-4 |
| 59 | J16-39 | 10-4 | 84 | J16-11 | 14-5 |
| 60 | J16-33 | 10-5 | 85 | | |
| 61 | | | 86 | J16-3 | 15-1 |
| 62 | J16-46 | 11-1 | 87 | J16-19 | 15-2 |
| 63 | J16-38 | 11-2 | 88 | J16-49 | 15-3 |
| 64 | J16-14 | 11-3 | 89 | J16-43 | 15-4 |
| 65 | J16-8 | 11-4 | 90 | J16-50 | 15-5 |
| 66 | J16-22 | 11-5 | 91 | | |
| 67 | | | 92 | J16-42 | 16-1 |
| 68 | J16-13 | 12-1 | 93 | J16-10 | 16-2 |
| 69 | J16-48 | 12-2 | 94 | J16-4 | 16-3 |
| 70 | J16-40 | 12-3 | 95 | J16-18 | 16-4 |
| 71 | J16-34 | 12-4 | 96 | J16-5 | 16-5 |
| 72 | J16-45 | 12-5 | 97 | | |
| 73 | | | 98 | J15-32 | 17-1 |
| 74 | J16-7 | 13-1 | 99 | J15-44 | 17-2 |
| 75 | J16-21 | 13-2 | 100 | J15-37 | 17-3 |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 101 | J15-31 | 17-4 | 126 | J15-36 | 21-5 |
| 102 | J15-16 | 17-5 | 127 | | |
| 103 | | | 128 | J15-47 | 22-1 |
| 104 | J15-15 | 18-1 | 129 | J15-41 | 22-2 |
| 105 | J15-9 | 18-2 | 130 | J15-35 | 22-3 |
| 106 | J15-17 | 18-3 | 131 | J15-20 | 22-4 |
| 107 | J15-39 | 18-4 | 132 | J15-11 | 22-5 |
| 108 | J15-33 | 18-5 | 133 | | |
| 109 | | | 134 | J15-3 | 23-1 |
| 110 | J15-46 | 19-1 | 135 | J15-19 | 23-2 |
| 111 | J15-38 | 19-2 | 136 | J15-49 | 23-3 |
| 112 | J15-14 | 19-3 | 137 | J15-43 | 23-4 |
| 113 | J15-8 | 19-4 | 138 | J15-50 | 23-5 |
| 114 | J15-22 | 19-5 | 139 | | |
| 115 | | | 140 | J15-42 | 24-1 |
| 116 | J15-13 | 20-1 | 141 | J15-10 | 24-2 |
| 117 | J15-48 | 20-2 | 142 | J15-4 | 24-3 |
| 118 | J15-40 | 20-3 | 143 | J15-18 | 24-4 |
| 119 | J15-34 | 20-4 | 144 | J15-5 | 24-5 |
| 120 | J15-45 | 20-5 | 145 | | |
| 121 | | | 146 | J14-32 | 25-1 |
| 122 | J15-7 | 21-1 | 147 | J14-44 | 25-2 |
| 123 | J15-21 | 21-2 | 148 | J14-37 | 25-3 |
| 124 | J15-12 | 21-3 | 149 | J14-31 | 25-4 |
| 125 | J15-6 | 21-4 | 150 | J14-16 | 25-5 |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 151 | | | 176 | J14-47 | 30-1 |
| 152 | J14-15 | 26-1 | 177 | J14-41 | 30-2 |
| 153 | J14-9 | 26-2 | 178 | J14-35 | 30-3 |
| 154 | J14-17 | 26-3 | 179 | J14-20 | 30-4 |
| 155 | J14-39 | 26-4 | 180 | J14-11 | 30-5 |
| 156 | J14-33 | 26-5 | 181 | | |
| 157 | | | 182 | J14-3 | 31-1 |
| 158 | J14-46 | 27-1 | 183 | J14-19 | 31-2 |
| 159 | J14-38 | 27-2 | 184 | J14-49 | 31-3 |
| 160 | J14-14 | 27-3 | 185 | J14-43 | 31-4 |
| 161 | J14-8 | 27-4 | 186 | J14-50 | 31-5 |
| 162 | J14-22 | 27-5 | 187 | | |
| 163 | | | 188 | J14-42 | 32-1 |
| 164 | J14-13 | 28-1 | 189 | J14-10 | 32-2 |
| 165 | J14-48 | 28-2 | 190 | J14-4 | 32-3 |
| 166 | J14-40 | 28-3 | 191 | J14-18 | 32-4 |
| 167 | J14-34 | 28-4 | 192 | J14-5 | 32-5 |
| 168 | J14-45 | 28-5 | 193 | | |
| 169 | | | 194 | J13-32 | 33-1 |
| 170 | J14-7 | 29-1 | 195 | J13-44 | 33-2 |
| 171 | J14-21 | 29-2 | 196 | J13-37 | 33-3 |
| 172 | J14-12 | 29-3 | 197 | J13-31 | 33-4 |
| 173 | J14-6 | 29-4 | 198 | J13-16 | 33-5 |
| 174 | J14-36 | 29-5 | 199 | | |
| 175 | | | 200 | J13-15 | 34-1 |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 201 | J13-9 | 34-2 | 226 | J13-35 | 38-3 |
| 202 | J13-17 | 34-3 | 227 | J13-20 | 38-4 |
| 203 | J13-39 | 34-4 | 228 | J13-11 | 38-5 |
| 204 | J13-33 | 34-5 | 229 | | |
| 205 | | | 230 | J13-3 | 39-1 |
| 206 | J13-46 | 35-1 | 231 | 213-19 | 39-2 |
| 207 | J13-38 | 35-2 | 232 | J13-49 | 39-3 |
| 208 | J13-14 | 35-3 | 233 | J13-43 | 39-4 |
| 209 | J13-8 | 35-4 | 234 | J13-50 | 39-5 |
| 210 | J13-22 | 35-5 | 235 | | |
| 211 | | | 236 | J13-42 | 40-1 |
| 212 | J13-13 | 36-1 | 237 | J13-10 | 40-2 |
| 213 | J13-48 | 36-2 | 238 | J13-4 | 40-3 |
| 214 | J13-40 | 36-3 | 239 | J13-18 | 40-4 |
| 215 | J13-34 | 36-4 | 240 | J13-5 | 40-5 |
| 216 | J13-45 | 36-5 | 241 | | |
| 217 | | | 242 | J12-32 | 41-1 |
| 218 | J13-7 | 37-1 | 243 | J12-44 | 41-2 |
| 219 | J13-21 | 37-2 | 244 | J12-37 | 41-3 |
| 220 | J13-12 | 37-3 | 245 | J12-31 | 41-4 |
| 221 | J13-6 | 37-4 | 246 | J12-16 | 41-5 |
| 222 | J13-36 | 37-5 | 247 | | |
| 223 | | | 248 | J12-15 | 42-1 |
| 224 | J13-47 | 38-1 | 249 | J12-9 | 42-2 |
| 225 | J13-41 | 38-2 | 250 | J12-17 | 42-3 |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 251 | J12-39 | 42-4 | 276 | J12-11 | 46-5 |
| 252 | J12-33 | 42-5 | 277 | | |
| 253 | | | 278 | J12-3 | 47-1 |
| 254 | J12-46 | 43-1 | 279 | J12-19 | 47-2 |
| 255 | J12-38 | 43-2 | 280 | J12-49 | 47-3 |
| 256 | J12-14 | 43-3 | 281 | J12-43 | 47-4 |
| 257 | J12-8 | 43-4 | 282 | J12-50 | 47-5 |
| 258 | J12-22 | 43-5 | 283 | | |
| 259 | | | 284 | J12-42 | 48-1 |
| 260 | J12-13 | 44-1 | 285 | J12-10 | 48-2 |
| 261 | J12-48 | 44-2 | 286 | J12-4 | 48-3 |
| 262 | J12-40 | 44-3 | 287 | J12-18 | 48-4 |
| 263 | J12-34 | 44-4 | 288 | J12-5 | 48-5 |
| 264 | J12-45 | 44-5 | 289 | | |
| 265 | | | 290 | J11-32 | 49-1 |
| 266 | J12-7 | 45-1 | 291 | J11-44 | 49-2 |
| 267 | J12-21 | 45-2 | 292 | J11-37 | 49-3 |
| 268 | J12-12 | 45-3 | 293 | J11-31 | 49-4 |
| 269 | J12-6 | 45-4 | 294 | J11-16 | 49-5 |
| 270 | J12-36 | 45-5 | 295 | | |
| 271 | | | 296 | J11-15 | 50-1 |
| 272 | J12-47 | 46-1 | 297 | J11-9 | 50-2 |
| 273 | J12-41 | 46-2 | 298 | J11-17 | 50-3 |
| 274 | J12-35 | 46-3 | 299 | J11-39 | 50-4 |
| 275 | J12-20 | 46-4 | 300 | J11-33 | 50-5 |

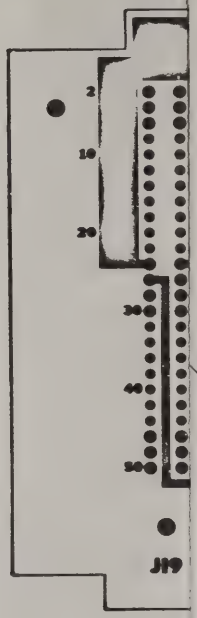
| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 301 | | | 326 | J11-3 | 55-1 |
| 302 | J11-46 | 51-1 | 327 | J11-19 | 55-2 |
| 303 | J11-38 | 51-2 | 328 | J11-49 | 55-3 |
| 304 | J11-14 | 51-3 | 329 | J11-43 | 55-4 |
| 305 | J11-8 | 51-4 | 330 | J11-50 | 55-5 |
| 306 | J11-22 | 51-5 | 331 | | |
| 307 | | | 332 | J11-42 | 56-1 |
| 308 | J11-13 | 52-1 | 333 | J11-10 | 56-2 |
| 309 | J11-48 | 52-2 | 334 | J11-4 | 56-3 |
| 310 | J11-40 | 52-3 | 335 | J11-18 | 56-4 |
| 311 | J11-34 | 52-4 | 336 | J11-5 | 56-5 |
| 312 | J11-45 | 52-5 | 337 | | |
| 313 | | | 338 | J10-32 | 57-1 |
| 314 | J11-7 | 53-1 | 339 | J10-44 | 57-2 |
| 315 | J11-21 | 53-2 | 340 | J10-37 | 57-3 |
| 316 | J11-12 | 53-3 | 341 | J10-31 | 57-4 |
| 317 | J11-6 | 53-4 | 342 | J10-16 | 57-5 |
| 318 | J11-36 | 53-5 | 343 | | |
| 319 | | | 344 | J10-15 | 58-1 |
| 320 | J11-47 | 54-1 | 345 | J10-9 | 58-2 |
| 321 | J11-41 | 54-2 | 346 | J10-17 | 58-3 |
| 322 | J11-35 | 54-3 | 347 | J10-39 | 58-4 |
| 323 | J11-20 | 54-4 | 348 | J10-33 | 58-5 |
| 324 | J11-11 | 54-5 | 349 | | |
| 325 | | | 350 | J10-46 | 59-1 |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 351 | J10-38 | 59-2 | 376 | J10-49 | 63-3 |
| 352 | J10-14 | 59-3 | 377 | J10-43 | 63-4 |
| 353 | J10-8 | 59-4 | 378 | J10-50 | 63-5 |
| 354 | J10-22 | 59-5 | 379 | | |
| 355 | | | 380 | J10-42 | 64-1 |
| 356 | J10-13 | 60-1 | 381 | J10-10 | 64-2 |
| 357 | J10-48 | 60-2 | 382 | J10-4 | 64-3 |
| 358 | J10-40 | 60-3 | 383 | J10-18 | 64-4 |
| 359 | J10-34 | 60-4 | 384 | J10-5 | 64-5 |
| 360 | J10-45 | 60-5 | 365 | | |
| 361 | | | 386 | J9-32 | 65-1 |
| 362 | J10-7 | 61-1 | 387 | J9-44 | 65-2 |
| 363 | J10-21 | 61-2 | 388 | J9-37 | 65-3 |
| 364 | J10-12 | 61-3 | 389 | J9-31 | 65-4 |
| 365 | J10-6 | 61-4 | 390 | J9-16 | 65-5 |
| 366 | J10-36 | 61-5 | 391 | | |
| 367 | | | 392 | J9-15 | 66-1 |
| 368 | J10-47 | 62-1 | 393 | J9-9 | 66-2 |
| 369 | J10-41 | 62-2 | 394 | J9-17 | 66-3 |
| 370 | J10-35 | 62-3 | 395 | J9-39 | 66-4 |
| 371 | J10-20 | 62-4 | 396 | J9-33 | 66-5 |
| 372 | J10-11 | 62-5 | 397 | | |
| 373 | | | 398 | J9-46 | 67-1 |
| 374 | J10-3 | 63-1 | 399 | J9-38 | 67-2 |
| 375 | J10-19 | 63-2 | 400 | J9-14 | 67-3 |

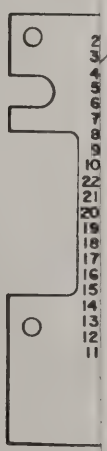
| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CONNECTOR DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 401 | J9-8 | 67-4 | 426 | J9-50 | 71-5 |
| 402 | J9-22 | 67-5 | 427 | | |
| 403 | | | 428 | J9-42 | 72-1 |
| 404 | J9-13 | 68-1 | 429 | J9-10 | 72-2 |
| 405 | J9-48 | 68-2 | 430 | J9-4 | 72-3 |
| 406 | J9-40 | 68-3 | 431 | J9-18 | 72-4 |
| 407 | J9-34 | 68-4 | 432 | J9-5 | 72-5 |
| 408 | J9-45 | 68-5 | 433 | | |
| 409 | | | 434 | J8-32 | 73-1 |
| 410 | J9-7 | 69-1 | 435 | J8-44 | 73-2 |
| 411 | J9-21 | 69-2 | 436 | J8-37 | 73-3 |
| 412 | J9-12 | 69-3 | 437 | J8-31 | 73-4 |
| 413 | J9-6 | 69-4 | 438 | J8-16 | 73-5 |
| 414 | J9-36 | 69-5 | 439 | | |
| 415 | | | 440 | J8-15 | 74-1 |
| 416 | J9-47 | 70-1 | 441 | J8-9 | 74-2 |
| 417 | J9-41 | 70-2 | 442 | J8-17 | 74-3 |
| 418 | J9-35 | 70-3 | 443 | J8-39 | 74-4 |
| 419 | J9-20 | 70-4 | 444 | J8-33 | 74-5 |
| 420 | J9-11 | 70-5 | 445 | | |
| 421 | | | 446 | J8-46 | 75-1 |
| 422 | J9-3 | 71-1 | 447 | J8-38 | 75-2 |
| 423 | J9-19 | 71-2 | 448 | J8-14 | 75-3 |
| 424 | J9-49 | 71-3 | 449 | J8-8 | 75-4 |
| 425 | J9-43 | 71-4 | 450 | J8-22 | 75-5 |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CONNECTOR DOT NO. | PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|---|---|---|
| 451 | | | 476 | J3-42 | 80-1 |
| 452 | J8-13 | 76-1 | 477 | J8-10 | 80-2 |
| 453 | J8-48 | 76-2 | 478 | J8-4 | 80-3 |
| 454 | J8-40 | 76-3 | 479 | J8-18 | 80-4 |
| 455 | J8-34 | 76-4 | 480 | J8-5 | 80-5 |
| 456 | J8-45 | 76-5 | 481 | | |
| 457 | | | 482 | | |
| 458 | J8-7 | 77-1 | | | |
| 459 | J8-21 | 77-2 | | | |
| 460 | J8-12 | 77-3 | | | |
| 461 | J8-6 | 77-4 | | | |
| 462 | J8-36 | 77-5 | | | |
| 463 | | | | | |
| 464 | J8-47 | 78-1 | | | |
| 465 | J8-41 | 78-2 | | | |
| 466 | J8-35 | 78-3 | | | |
| 467 | J8-20 | 78-4 | | | |
| 468 | J8-11 | 78-5 | | | |
| 469 | | | | | |
| 470 | J8-3 | 79-1 | | | |
| 471 | J8-19 | 79-2 | | | |
| 472 | J8-49 | 79-3 | | | |
| 473 | J8-43 | 79-4 | | | |
| 474 | J8-50 | 79-5 | | | |
| 475 | | | | | |

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | SEE SHEET 1 | | |




MOTHER BOARD




PRINT HEAD BOARD

101804-860 D

| IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|

LIST OF MATERIAL

CONTRACT NO.

APPROVED

APPROVED

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

WIRING ASSY INSTRUCTIONS

| CODE IDENT NO. | SIZE | DRAWING NO. | REV |
|---|---|---|---|
| 19059 | D | 101804-860 | D |

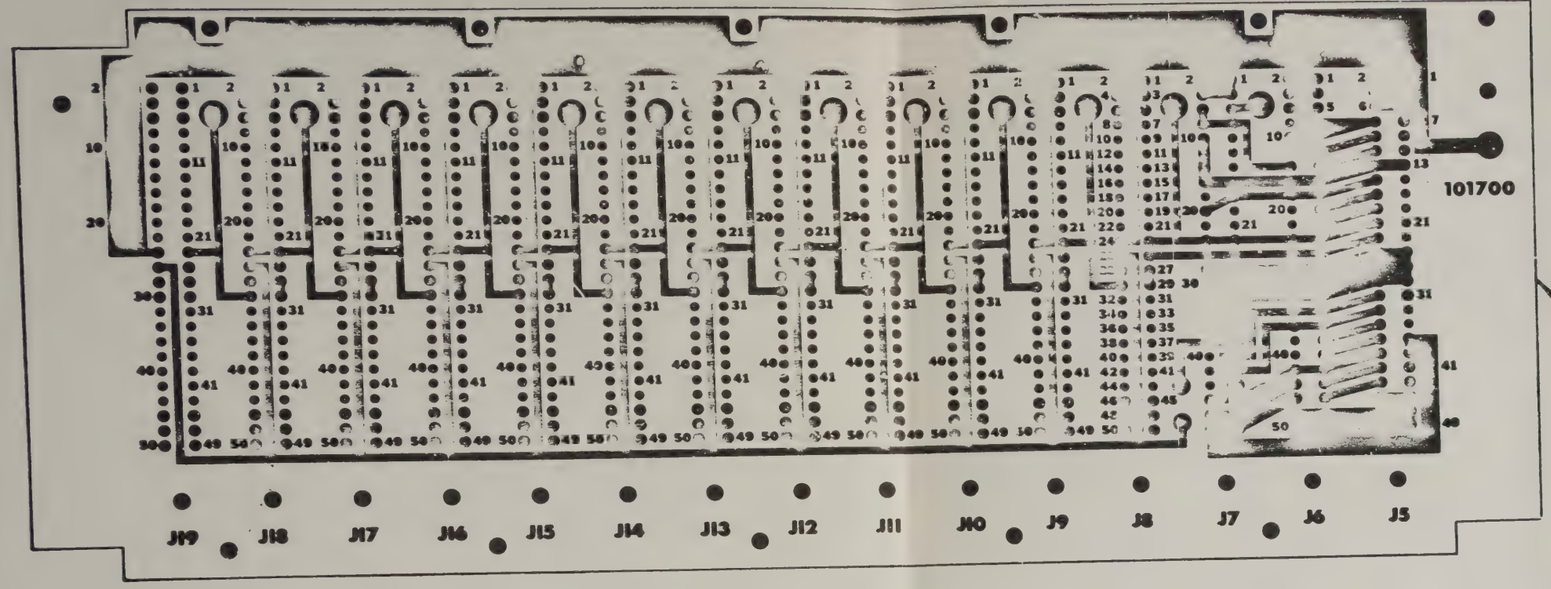
SCALE NONE | WEIGHT | SHEET 13 OF 13

-0091 CODE IDENT 19059

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CONNECTOR DOT NO. |
|---|---|---|
| 451 | | |
| 452 | J8-13 | 76-1 |
| 453 | J8-48 | 76-2 |
| 454 | J8-40 | 76-3 |
| 455 | J8-34 | 76-4 |
| 456 | J8-45 | 76-5 |
| 457 | | |
| 458 | J8-7 | 77-1 |
| 459 | J8-21 | 77-2 |
| 460 | J8-12 | 77-3 |
| 461 | J8-6 | 77-4 |
| 462 | J8-36 | 77-5 |
| 463 | | |
| 464 | J8-47 | 78-1 |
| 465 | J8-41 | 78-2 |
| 466 | J8-35 | 78-3 |
| 467 | J8-20 | 78-4 |
| 468 | J8-11 | 78-5 |
| 469 | | |
| 470 | J8-3 | 79-1 |
| 471 | J8-19 | 79-2 |
| 472 | J8-49 | 79-3 |
| 473 | J8-43 | 79-4 |
| 474 | J8-50 | 79-5 |
| 475 | | |

| PRINT HEAD PIN NO. | MOTHER BOARD CONNECTOR PIN NO. | CHARACTER DOT NO. |
|---|---|---|
| 476 | J3-42 | 80-1 |
| 477 | J8-10 | 80-2 |
| 478 | J8-4 | 80-3 |
| 479 | J8-18 | 80-4 |
| 480 | J8-5 | 80-5 |
| 481 | | |
| 482 | | |

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | SEE SHEET 1 | | |




| 1 | 23 | 24 | 46 | 47 | 69 | 70 | 92 | 93 | 115 | 116 | 138 | 139 | 161 | 162 | 184 | 185 | 207 | 208 | 230 | 231 | 253 | 254 | 276 | 277 | 299 | 300 | 322 | 323 | 345 | 346 | 368 | 369 | 391 | 392 | 414 | 415 | 437 | 438 | 460 | 461 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ |
| 20 | 25 | ● | 48 | ○ | 71 | ○ | 94 | ○ | 117 | ○ | 140 | ○ | 163 | ● | 186 | ○ | 209 | ○ | 232 | ○ | 255 | ○ | 278 | ○ | 301 | ● | 324 | ○ | 347 | ○ | 370 | ○ | 393 | ○ | 416 | ○ | 439 | ● | 462 | ○ |
| 30 | 26 | ○ | 49 | ● | 72 | ○ | 95 | ○ | 118 | ○ | 141 | ○ | 164 | ○ | 187 | ● | 210 | ○ | 233 | ○ | 256 | ○ | 279 | ○ | 302 | ○ | 325 | ● | 348 | ○ | 371 | ○ | 394 | ○ | 417 | ○ | 440 | ○ | 463 | ● |
| 40 | 27 | ○ | 50 | ○ | 73 | ● | 96 | ○ | 119 | ○ | 142 | ○ | 165 | ○ | 188 | ○ | 211 | ● | 234 | ○ | 257 | ○ | 280 | ○ | 303 | ○ | 326 | ○ | 349 | ● | 372 | ○ | 395 | ○ | 418 | ○ | 441 | ○ | 464 | ○ |
| 50 | 28 | ○ | 51 | ○ | 74 | ○ | 97 | ● | 120 | ○ | 143 | ○ | 166 | ○ | 189 | ○ | 212 | ○ | 235 | ● | 258 | ○ | 281 | ○ | 304 | ○ | 327 | ○ | 350 | ○ | 373 | ● | 396 | ○ | 419 | ○ | 442 | ○ | 465 | ○ |
| 60 | 29 | ○ | 52 | ○ | 75 | ○ | 98 | ○ | 121 | ● | 144 | ○ | 167 | ○ | 190 | ○ | 213 | ○ | 236 | ○ | 259 | ● | 282 | ○ | 305 | ○ | 328 | ○ | 351 | ○ | 374 | ○ | 397 | ● | 420 | ○ | 443 | ○ | 466 | ○ |
| 70 | 30 | ○ | 53 | ○ | 76 | ○ | 99 | ○ | 122 | ○ | 145 | ● | 168 | ○ | 191 | ○ | 214 | ○ | 237 | ○ | 260 | ○ | 283 | ● | 306 | ○ | 329 | ○ | 352 | ○ | 375 | ○ | 398 | ○ | 421 | ○ | 444 | ○ | 467 | ○ |
| 80 | 31 | ● | 54 | ○ | 77 | ○ | 100 | ○ | 123 | ○ | 146 | ○ | 169 | ● | 192 | ○ | 215 | ○ | 238 | ○ | 261 | ○ | 284 | ○ | 307 | ● | 330 | ○ | 353 | ○ | 376 | ○ | 399 | ○ | 422 | ○ | 445 | ● | 468 | ○ |
| 90 | 32 | ○ | 55 | ● | 78 | ○ | 101 | ○ | 124 | ○ | 147 | ○ | 170 | ○ | 193 | ● | 216 | ○ | 239 | ○ | 262 | ○ | 285 | ○ | 308 | ○ | 331 | ● | 354 | ○ | 377 | ○ | 400 | ○ | 423 | ○ | 446 | ○ | 469 | ● |
| 100 | 33 | ○ | 56 | ○ | 79 | ● | 102 | ○ | 125 | ○ | 148 | ○ | 171 | ○ | 194 | ○ | 217 | ● | 240 | ○ | 263 | ○ | 286 | ○ | 309 | ○ | 332 | ○ | 355 | ● | 378 | ○ | 401 | ○ | 424 | ○ | 447 | ○ | 470 | ○ |
| 220 | 45 | ○ | 68 | ○ | 91 | ● | 114 | ○ | 137 | ○ | 160 | ○ | 183 | ○ | 206 | ○ | 229 | ● | 252 | ○ | 275 | ○ | 298 | ○ | 321 | ○ | 344 | ○ | 367 | ● | 390 | ○ | 413 | ○ | 436 | ○ | 459 | ○ | 482 | ● |
| 210 | 44 | ○ | 67 | ● | 90 | ○ | 113 | ○ | 136 | ○ | 159 | ○ | 182 | ○ | 205 | ● | 228 | ○ | 251 | ○ | 274 | ○ | 297 | ○ | 320 | ○ | 343 | ● | 366 | ○ | 389 | ○ | 412 | ○ | 435 | ○ | 458 | ○ | 481 | ● |
| 200 | 43 | ● | 66 | ○ | 89 | ○ | 112 | ○ | 135 | ○ | 158 | ○ | 181 | ● | 204 | ○ | 227 | ○ | 250 | ○ | 273 | ○ | 296 | ○ | 319 | ● | 342 | ○ | 365 | ○ | 388 | ○ | 411 | ○ | 434 | ○ | 457 | ● | 480 | ○ |
| 190 | 42 | ○ | 65 | ○ | 88 | ○ | 111 | ○ | 134 | ○ | 157 | ● | 180 | ○ | 203 | ○ | 226 | ○ | 249 | ○ | 272 | ○ | 295 | ● | 318 | ○ | 341 | ○ | 364 | ○ | 387 | ○ | 410 | ○ | 433 | ● | 456 | ○ | 479 | ○ |
| 180 | 41 | ○ | 64 | ○ | 87 | ○ | 110 | ○ | 133 | ● | 156 | ○ | 179 | ○ | 202 | ○ | 225 | ○ | 248 | ○ | 271 | ● | 294 | ○ | 317 | ○ | 340 | ○ | 363 | ○ | 386 | ○ | 409 | ● | 432 | ○ | 455 | ○ | 478 | ○ |
| 170 | 40 | ○ | 63 | ○ | 86 | ○ | 109 | ● | 132 | ○ | 155 | ○ | 178 | ○ | 201 | ○ | 224 | ○ | 247 | ● | 270 | ○ | 293 | ○ | 316 | ○ | 339 | ○ | 362 | ○ | 385 | ● | 408 | ○ | 431 | ○ | 454 | ○ | 477 | ○ |
| 160 | 39 | ○ | 62 | ○ | 85 | ● | 108 | ○ | 131 | ○ | 154 | ○ | 177 | ○ | 200 | ○ | 223 | ● | 246 | ○ | 269 | ○ | 292 | ○ | 315 | ○ | 338 | ○ | 361 | ● | 384 | ○ | 407 | ○ | 430 | ○ | 453 | ○ | 476 | ○ |
| 150 | 38 | ○ | 61 | ● | 84 | ○ | 107 | ○ | 130 | ○ | 153 | ○ | 176 | ○ | 199 | ● | 222 | ○ | 245 | ○ | 268 | ○ | 291 | ○ | 314 | ○ | 337 | ● | 360 | ○ | 383 | ○ | 406 | ○ | 429 | ○ | 452 | ○ | 475 | ● |
| 140 | 37 | ● | 60 | ○ | 83 | ○ | 106 | ○ | 129 | ○ | 152 | ○ | 175 | ● | 198 | ○ | 221 | ○ | 244 | ○ | 267 | ○ | 290 | ○ | 313 | ● | 336 | ○ | 359 | ○ | 382 | ○ | 405 | ○ | 428 | ○ | 451 | ● | 474 | ○ |
| 130 | 36 | ○ | 59 | ○ | 82 | ○ | 105 | ○ | 128 | ○ | 151 | ● | 174 | ○ | 197 | ○ | 220 | ○ | 243 | ○ | 266 | ○ | 289 | ● | 312 | ○ | 335 | ○ | 358 | ○ | 381 | ○ | 404 | ○ | 427 | ● | 450 | ○ | 473 | ○ |
| 120 | 35 | ○ | 58 | ○ | 81 | ○ | 104 | ○ | 127 | ● | 150 | ○ | 173 | ○ | 196 | ○ | 219 | ○ | 242 | ○ | 265 | ● | 288 | ○ | 311 | ○ | 334 | ○ | 357 | ○ | 380 | ○ | 403 | ● | 426 | ○ | 449 | ○ | 472 | ○ |
| 110 | 34 | ○ | 57 | ○ | 80 | ○ | 103 | ● | 126 | ○ | 149 | ○ | 172 | ○ | 195 | ○ | 218 | ○ | 241 | ● | 264 | ○ | 287 | ○ | 310 | ○ | 333 | ○ | 356 | ○ | 379 | ● | 402 | ○ | 425 | ○ | 448 | ○ | 471 | ○ |

PRINT HEAD BOARD

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (I) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (II) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

| NEXT ASSY | USED ON |
|---|---|
| APPLICATION | |
| HEAT TREAT | |
| SPEC. | |
| FINISH | |
| SPEC. | |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .XXX ±
FRACT. ± ANG. ± 0°30'
HOLE TOLERANCES
.040 TO .128 +.003 -.001
.136 TO .228 +.004 -.001
.234 TO 1/2 +.004 -.001
33/64 TO 3/4 +.005 -.001
MACH. FINISH √ OR BETTER
BREAK SHARP EDGES AND REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO.
APPROVED
APPROVED
DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

WIRING ASSY INSTRUCTIONS

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | D | 101804-860 | D |
| SCALE NONE | WEIGHT | SHEET 13 OF 13 | |

101804-860

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| A | 0468-01 | REDRAWN WITH CHANGES | [illegible] | ✓ ✓ |
| B | 0657-A1 | REVISED PER ECO | 8/21/71 | ✓ ✓ |

| A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|
| | | | X | | X | X | | | |

MIL - D - 1000 INTENDED USE CATEGORY

INTERFACE CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOL. XX ± ..., XXX ± . —,
FRACT. ± .030 ANG. ± 0°30'

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001

CONTRACT NO.

| | | |
|---|---|---|
| DRAWN | G. Johnson | 11-10-70 |
| CHECK | M. Platupe | 11-11-70 |
| ELEC. | | |
| MECH | | |
| DESIGN | | |
| APPR: | | |

APPROVED
D. S. Dimitri 11-12-70

APPROVED

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

ASSEMBLY,
INTERFACE HARNESS

| NEXT ASSY | USED ON |
|---|---|
| 101792-100 | TT-643/UY |

APPLICATION

DO NOT SCALE DRAWING

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | A | 101833-100 | B |

SCALE NONE WEIGHT SHEET 1 OF 6

DmC 201292 REV 3-7-69

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

DmC 201291 REV 2-27-69

**DATAMETRICS CORPORATION**
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

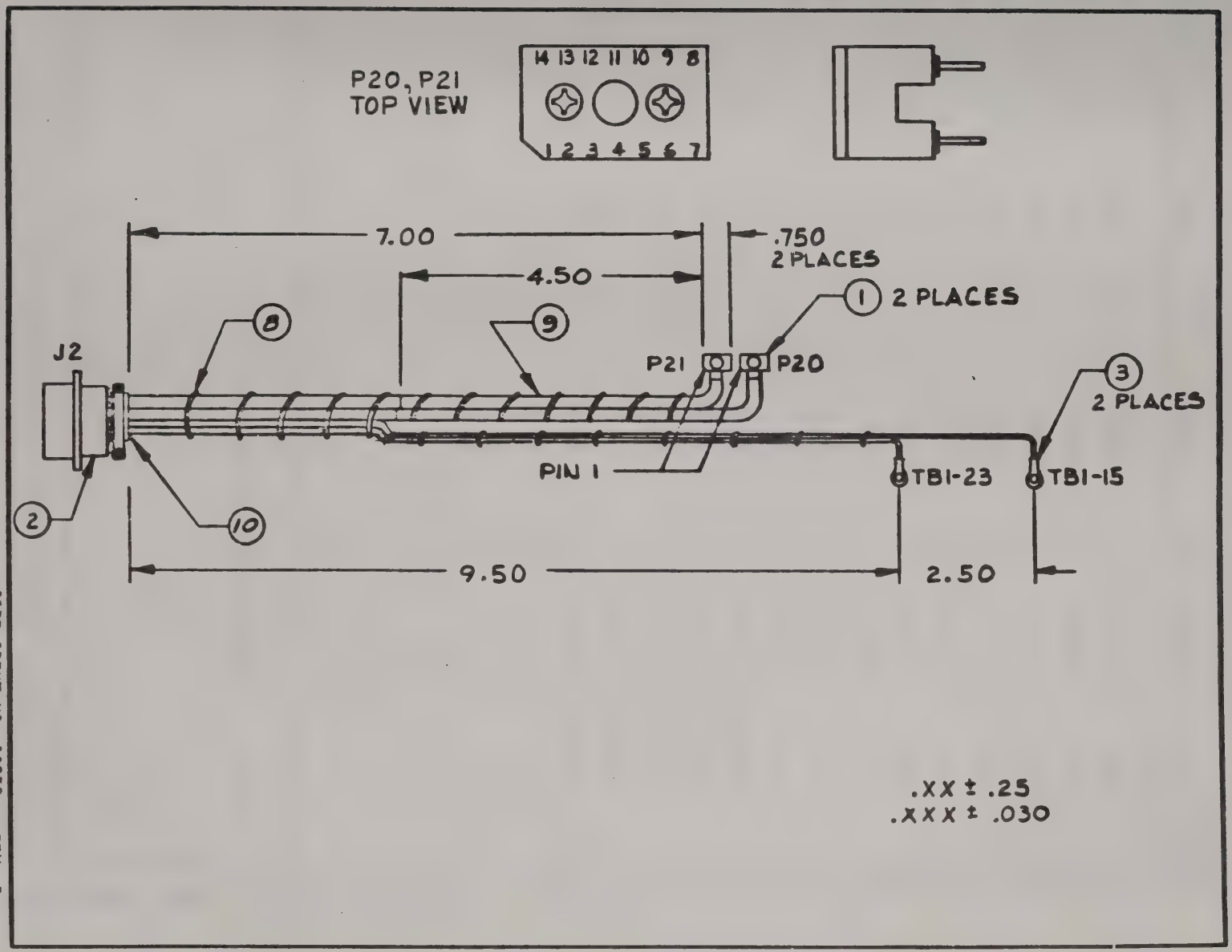
TITLE: ASSEMBLY, INTERFACE HARNESS

CODE IDENT NO. 19059

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|
| | 10 | 2.5 IN. | 922005-0002 | TAPE, FOAM, ADHESIVE | 4516 1/2 WIDE | 3M 4 |
| | 9 | 10 IN. | CL1-188-BLACK | SLEEVING, INSULATION | | MIL-I-23053/5 |
| | 8 | A/R | I-B-4 | TAPE, LACING | | MIL-T-43435 |
| | 7 | 2 FT. | E-26-BLACK | WIRE, #26 AWG, TFE STRANDED, BLACK | | MIL-W-16878/4 |
| | 6 | 22 FT. | E-26-WHITE | WIRE, #26 AWG, TFE STRANDED, WHITE | | MIL-W-16878/4 |
| | 5 | 1 FT. | E-24-WHT/RED/GRN | WIRE, #24 AWG, TFE STRANDED, WHITE/RED/GREEN | | MIL-W-16878/4 |
| | 4 | 14 IN. | E-24-WHITE | WIRE, #24 AWG, TFE STRANDED, WHITE | | MIL-W-16878/4 |
| | 3 | 2 | MS25036-45 | LUG, INSULATED CRIMP | | MIL-T-7928 |
| J2 | 2 | 1 | MS3120F20-41P | CONNECTOR | | |
| P20 P21 | 1 | 2 | 914002-0002 | PLUG, INTERFACE (1P14-1) | AUGAT 4 | |

DOCUMENT NUMBER
101833-100

REV B


P20, P21
TOP VIEW
14 13 12 11 10 9 8
1 2 3 4 5 6 7
7.00
4.50
.750
2 PLACES
1
2 PLACES
J2
8
9
P21
P20
3
2 PLACES
PIN 1
TBI-23
TBI-15
2
10
9.50
2.50
.XX ± .25
.XXX ± .030

TITLE: ASSEMBLY, INTERFACE HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 1 | P20-1 | J2-C | WHITE | #26 | 12 IN. |
| 2 | P20-2 | J2-D | WHITE | #26 | 12 IN. |
| 3 | P20-3 | J2-E | WHITE | #26 | 12 IN. |
| 4 | P20-4 | J2-F | WHITE | #26 | 12 IN. |
| 5 | P20-5 | J2-G | WHITE | #26 | 12 IN. |
| 6 | P20-6 | J2-H | WHITE | #26 | 12 IN. |
| 7 | P20-7 | J2-J | WHITE | #26 | 12 IN. |
| 8 | P20-8 | J2-K | WHITE | #26 | 12 IN. |
| 9 | P20-9 | J2-L | WHITE | #26 | 12 IN. |
| 10 | P20-10 | J2-M | WHITE | #26 | 12 IN. |
| 11 | P20-11 | J2-N | WHITE | #26 | 12 IN. |
| 12 | P20-12 | J2-P | WHITE | #26 | 12 IN. |
| 13 | P20-13 | J2-R | WHITE | #26 | 12 IN. |
| 14 | P20-14 | J2-S | WHITE | #26 | 12 IN. |

NOTES: 1. FOR SCHEMATIC SEE DRAWING 101832-320.

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

CODE IDENT NO. 19059

DmC DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

DOCUMENT NUMBER 101833-100 REV B

TITLE: ASSEMBLY, INTERFACE HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 15 | P21-1 | J2-T | WHITE | #26 | 12 IN. |
| 16 | P21-2 | J2-U | WHITE | #26 | 12 IN. |
| 17 | P21-3 | J2-V | WHITE | #26 | 12 IN. |
| 18 | P21-4 | J2-W | WHITE | #26 | 12 IN. |
| 19 | P21-5 | J2-A | BLACK | #26 | 12 IN. |
| 20 | P21-6 | J2-B | BLACK | #26 | 12 IN. |
| 21 | P21-7 | NO CONNECTION | WHITE | #26 | 12 IN. |
| 22 | P21-8 | NO CONNECTION | WHITE | #26 | 12 IN. |
| 23 | P21-9 | NO CONNECTION | WHITE | #26 | 12 IN. |
| 24 | P21-10 | NO CONNECTION | WHITE | #26 | 12 IN. |
| 25 | P21-11 | J2-Z | WHITE | #26 | 12 IN. |
| 26 | P21-12 | J2-X | WHITE | #26 | 12 IN. |
| 27 | P21-13 | J2-Y | WHITE | #26 | 12 IN. |
| 28 | P21-14 | J2-c | WHITE | #26 | 12 IN. |
| 29 | TB1-15 △2 | J2-b | WHITE/RED/GREEN | #24 | 14 IN. |
| 30 | TB1-23 △2 | J2-a | WHITE | #24 | 12 IN. |

NOTES: △2 REQUIRES ITEM 3 CRIMP LUG.

CODE IDENT NO. 19059

TITLE: ASSEMBLY, INTERFACE HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| | | | | | |

NOTES: 3. MARK REF. DESIGNATIONS ON SIDES OF PLUGS P20 & P21 PER MIL-STD-130C. RUBBER STAMP WITH WHITE INK PER DmC PROCESS SPECIFICATION 895010.

4. SUGGESTED SOURCE OR APPROVED ENGINEERING EQUIV.

CODE IDENT NO. 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| B | 0504-A2 | REVISED PER ECO | [illegible] | [illegible] |
| C | 0657-B4 | REVISED PER ECO's | [illegible] | [illegible] |

| A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|
| | | | | X | | | | | |

MIL - D - 1000 INTENDED USE CATEGORY

INTERFACE CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOL. .XX ± ..., .XXX ± ...,
FRACT. ± .030 ANG. ± 0°30'

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001

CONTRACT NO.

| | | |
|---|---|---|
| DRAWN | G.JOHNSON | 11-10-70 |
| CHECK | M.PLATUK | 11-11-70 |
| ELEC. | | |
| MECH | | |
| DESIGN | | |
| APPR: | | |

APPROVED DIMITRI 11/11/70

APPROVED

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

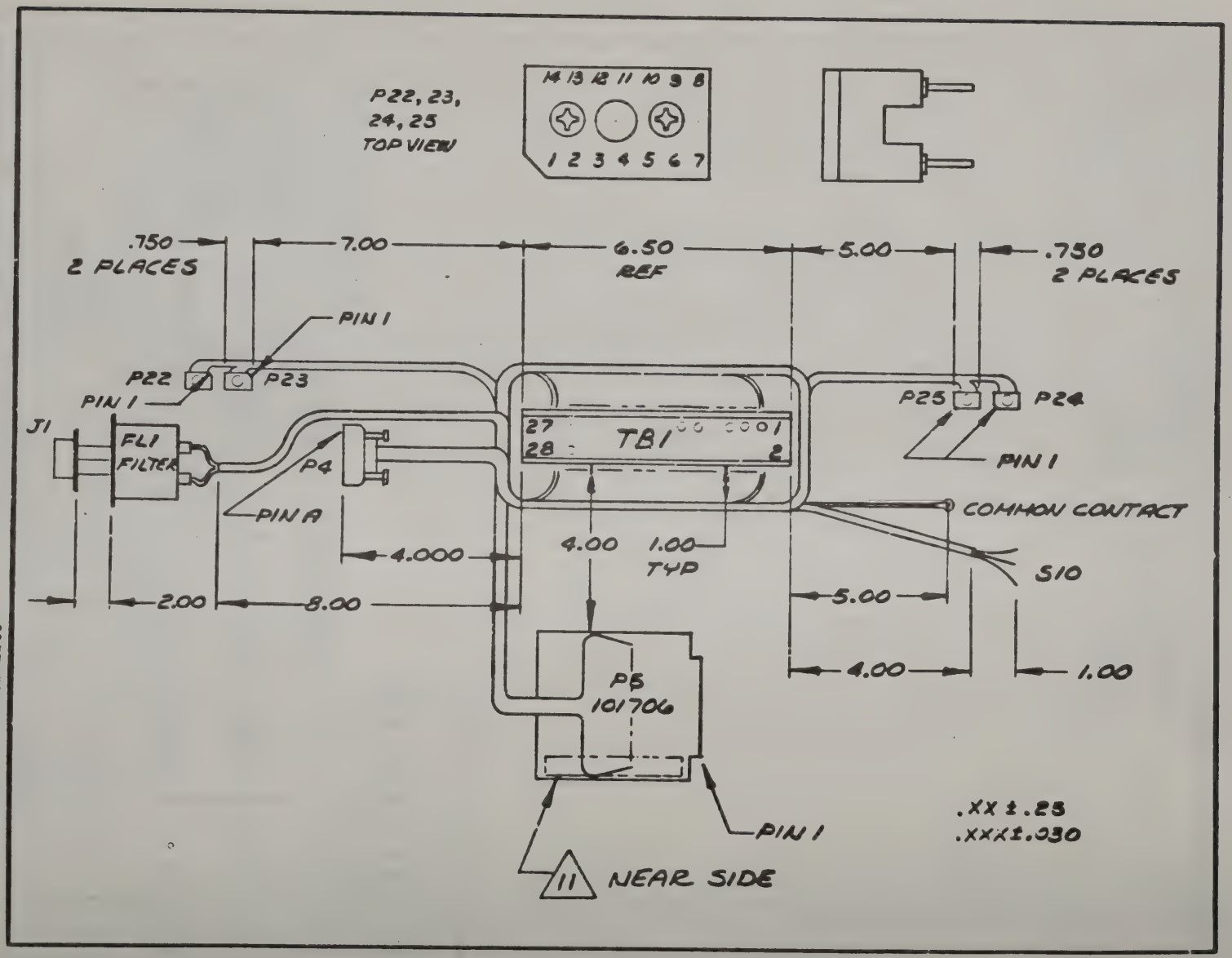
ASSEMBLY,
INTERCONNECTION
HARNESS

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | A | 101834-100 | C |

| NEXT ASSY | USED ON |
|---|---|
| 101792-100 | TF649/UY |

APPLICATION | DO NOT SCALE DRAWING | SCALE NONE | WEIGHT | SHEET 1 OF 13

DmC 201292 REV 3-7-69


P22, 23, 24, 25 TOP VIEW
14 13 12 11 10 9 8
1 2 3 4 5 6 7
.750 2 PLACES
7.00
6.50 REF
5.00
.750 2 PLACES
PIN 1
P22
P23
PIN 1
J1
FL1 FILTER
P4
PIN A
27
28
TB1
2
P25
P24
PIN 1
COMMON CONTACT
S10
4.000
4.00
1.00 TYP
2.00
8.00
5.00
4.00
1.00
P5 101706
PIN 1
11
NEAR SIDE
.XX ± .25
.XXX ± .030

DmC 201291 REV 2-27-69

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

CODE IDENT NO. 19059

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|
| | 14 | 1 | MS15795-806 | WASHER, FLAT #6 | | |
| | 13 | 1 | MS21083C06 | NUT, LOCKING #6 | | |
| | 12 | 1 | 910008-0001 | WASHER, CLAMP (D4-140) | | WECKESSER 5 |
| | 11 | 1 | MS51957-28 | SCREW, PAN HD. 6-32 x 3/8 | | |
| | 10 | 1 | 910007-0002 | CLAMP, CABLE (TYPE 3/8-4) | NYLON | WECKESSER 5 |
| | 9 | 6 | MS17804-16-20 | CONTACT, FEMALE #20 | | |
| | 8 | 35 | MS25036-45 | LUG, CRIMP INSULATED | | MIL-T-7928 |
| TB1 | 7 | 1 | 10TB-28 | TERMINAL STRIP | | MIL-T-16784B |
| J1 | 6 | 1 | MS3100E22-2P | CONNECTOR | | |
| | 5 | 10 | MS17804-16-16 | CONTACT, FEMALE #16 | | |
| P4 | 4 | 1 | 914007-0001 | CONNECTOR (XAC20SM2000) | | WINCHESTER 5 |
| P22 thru P25 | 3 | 4 | 914002-0002 | PLUG, INTERFACE (1P14-1) | | AUGAT 5 |
| P5 | 2 | 1 | 101706 | P. C. BOARD | | |
| FL1 | 1 | 1 | 102189 | RFI FILTER | | |

LIST OF MATERIAL

DOCUMENT NUMBER 101834-100

REV C

DmC 201291 REV 2-27-69

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

CODE IDENT NO. 19059

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|
| | 28 | 6 FT. | E-22-GRAY | WIRE, GRAY | 22 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 27 | 7 FT. | E-22-RED | WIRE, RED | 22 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 26 | 13 FT. | E-22-BLACK | WIRE, BLACK | 22 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 25 | AR | TYPE PUR | CONFORMAL COAT | | MIL-I-46058 |
| | 24 | 4 FT. | E-24-WHITE | WIRE, WHITE | 24 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 23 | 8 FT. | E-24-RED | WIRE, RED | 24 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 22 | 3 FT. | E-24-BLACK | WIRE, BLACK | 24 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 21 | 7 FT. | E-26-WHT/RED/YEL | WIRE, WHITE/RED/YELLOW | 26 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 20 | 2.5 FT. | E-26-WHT/RED/ORG | WIRE, WHITE/RED/ORANGE | 26 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 19 | 14 IN. | E-26-WHITE/RED | WIRE, WHITE/RED | 26 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 18 | 2.5 FT. | E-26-VIOLET | WIRE, VIOLET | 26 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 17 | 3.5 FT. | E-26-WHITE | WIRE, WHITE | 26 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 16 | 14 IN. | E-26-RED | WIRE, RED | 26 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 15 | 10 FT. | E-26-BLACK | WIRE, BLACK | 26 AWG, TFE, STRANDED | MIL-W-16878/4 |

LIST OF MATERIAL

DOCUMENT NUMBER 101834-100

REV C

DMC 20129I REV 2-27-69

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

CODE IDENT NO. 19059

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | 38 | 1 | MS77068-2 | LUG, SOLDER | | |
| | 37 | 4 FT. | CL1-187-BLACK | INSULATION, SLEEVING | | MIL-I-23053/5 |
| | 36 | 4 FT | 1/8 I.D. | WOVEN TUBULAR, BRAID 1/8 ID | (ALPHA 2166) | QQ-B-575 |
| | 35 | A/R | SN60WRMAP3 | SOLDER, TIN ALLOY | | QQ-S-571 |
| | 34 | 2 FT. | CL1-250-BLACK | INSULATION, SLEEVING | | MIL-I-23053/5 |
| | 33 | A/R | I-B-4 | TAPE, LACING | | MIL-T-43435 |
| | 32 | 2 FT. | 11/64 I.D. | WOVEN TUBULAR, BRAID 11/64 I.D. | (ALPHA 2168) | QQ-B-575 |
| | 31 | 2 FT. | 1/32 I.D. | WOVEN TUBULAR, BRAID 1/32 I.D. | (ALPHA 2160) | QQ-B-575 |
| | 30 | 3 FT. | E-22-WHT/RED/YEL | WIRE, WHITE/RED/YELLOW | 22 AWG, TFE, STRANDED | MIL-W-16878/4 |
| | 29 | 2 FT | E-22-WHITE/RED | WIRE, WHITE/RED | 22 AWG, TFE, STRANDED | MIL-W-16878/4 |

LIST OF MATERIAL

DOCUMENT NUMBER 101834-100 REV C

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 1 | FL1-E4 | J1-A | GRAY | #22 | 4 INCHES |
| 2 | FL1-E5 | J1-B | GRAY | #22 | 4 INCHES |
| 3 | FL1 CASE | J1-C (8) | BLACK | #22 | 4 INCHES |
| 4 | | | | | |
| 5 | FL1-E1 | TB1-5 (2) | GRAY | #22 | 20 INCHES |
| 6 | FL1-E3 | TB1-3 (2) | GRAY | #22 | 20 INCHES |
| 7 | FL1-E2 | NO CONNECTION | SHIELD* | | |
| 8 | TB1-4 (2) | P4-X (4) | GRAY | #22 | 10 INCHES |
| 9 | TB1-6 (2) | P4-W (4) | GRAY | #22 | 10 INCHES |
| 10 | TB1-2 (2) | NO CONNECTION | SHIELD* | | |
| 11 | TB1-9 (2) | P4-F (3) | BLACK | #24 | 10 INCHES |
| 12 | TB1-11 (2) | P4-J (3) | WHITE/RED/YELLOW | #22 | 10 INCHES |
| 13 | TB1-1 (2) | NO CONNECTION | SHIELD* | | |

NOTES: (THIS PAGE ONLY)

*MAKE TWISTED PAIRS. SHIELD WITH ITEM 36 AND INSULATE WITH ITEM 37.

CODE IDENT NO. 19059

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

| WIRE NO. | FROM | TO | COLOR | CAUGE | LENGTH |
|---|---|---|---|---|---|
| 14 | P5-9 | P24-1 (6) | WHITE | #26 | 24 INCHES |
| 15 | P5-10 | P24-2 | WHITE | #26 | 24 INCHES |
| 16 | P5-20 | P24-3 | WHITE | #26 | 24 INCHES |
| 17 | P5-38 | P24-4 | WHITE | #26 | 24 INCHES |
| 18 | P5-44 | P24-5 | WHITE | #26 | 24 INCHES |
| 19 | P5-22 | P24-6 | WHITE | #26 | 24 INCHES |
| 20 | P5-16 | P24-8 | WHITE | #26 | 24 INCHES |
| 21 | P5-34 | P24-9 | WHITE | #26 | 24 INCHES |
| 22 | P5-41 | P24-10 | WHITE | #26 | 24 INCHES |
| 23 | P5-40 | P24-11 | WHITE | #26 | 24 INCHES |
| 24 | P5-43 | P24-12 | WHITE | #26 | 24 INCHES |
| 25 | P5-11 | P24-13 | WHITE | #26 | 24 INCHES |
| 26 | P5-31 | P24-14 | WHITE | #26 | 24 INCHES |
| 27 | P5-23 | P25-1 | WHITE | #26 | 24 INCHES |
| 28 | P5-1 | NO CONNECTION | SHIELD* | | |
| 29 | P5-24 | P24-7 | WHITE | #26 | 24 INCHES |
| 30 | NC | P25-5 | SHIELD** | | |

NOTES: (THIS PAGE ONLY)

*SHIELD WIRE NO.'S 14 THRU 27 WITH ITEM 32.

**SHIELD WIRE NO. 29 WITH ITEM 31.

USING ITEM 34 SHRINK SLEEVE * AND ** TOGETHER.

CODE IDENT NO. 19059



CONTRACT NO. F30602-76-C-0081 CODE IDENT 19059

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 31 | P25-2 △6 | P5-21 | WHITE | #26 | 24 INCHES |
| 32 | P25-3 | P5-19 | WHITE | #26 | 24 INCHES |
| 33 | P25-4 | TB1-26 △2 | WHITE | #26 | 13 INCHES |
| 34 | P25-5 | SHIELD OF P24-7 | BLACK | #26 | 4 INCHES |
| 35 | P25-6 | P5-17 | WHITE | #26 | 24 INCHES |
| 36 | P25-7 | TB1-10 △2 | BLACK | #26 | 10 INCHES |
| 37 | P25-8 | TB1-8 △2 | WHITE | #26 | 10 INCHES |
| 38 | P25-9 | NO CONNECTION | | #26 | |
| 39 | P25-10 | TB1-19 △2 | WHITE | #26 | 14 INCHES |
| 40 | P25-11 | P5-33 | BLACK | #26 | 24 INCHES |
| 41 | P25-12 | TB1-13 △2 | WHITE | #26 | 12 INCHES |
| 42 | P25-13 | TB1-7 △2 | WHITE | #26 | 11 INCHES |
| 43 | P25-14 | TB1-27 △2 | WHITE | #26 | 14 INCHES |

NOTES:
1. REFERENCE SCHEMATIC 101832-320.
△2. REQUIRES ITEM 8 CRIMP LUG.
△3. REQUIRES ITEM 5 CONTACT.

CODE IDENT NO. 19059

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 44 | P4-A | P5-6 | BLACK | #22 | 14 INCHES |
| 45 | P4-A (3) | P5-5 | BLACK | #22 | 14 INCHES |
| 46 | P4-A | P5-4 | BLACK | #22 | 14 INCHES |
| 47 | P4-B (3) | P5-3 | BLACK | #22 | 14 INCHES |
| 48 | P4-B | P5-2 | BLACK | #22 | 14 INCHES |
| 49 | P4-C | P5-50 | BLACK | #22 | 14 INCHES |
| 50 | P4-C (3) | P5-49 | BLACK | #22 | 14 INCHES |
| 51 | P4-C | P5-48 | BLACK | #22 | 14 INCHES |
| 52 | P4-D | P5-47 | BLACK | #22 | 14 INCHES |
| 53 | P4-D (3) | P5-46 | BLACK | #22 | 14 INCHES |
| 54 | P4-D | P5-45 | BLACK | #22 | 14 INCHES |
| 55 | TB1-1 (2) | TB1-12 (2) | BLACK | #24 | 8 INCHES |
| 56 | TB1-1 (2) | CHASSIS LUG (2) | BLACK | #24 | 3 INCHES |
| 57 | TB1-2 (2) | CHASSIS LUG (2) | BLACK | #24 | 3 INCHES |
| 58 | TB1-10 (2) | S10-C DOOR SW. | BLACK | #24 | 8 INCHES |

NOTES: (4.) REQUIRES ITEM 9 CONTACT.

(5.) SUGGESTED SOURCE OR APPROVED ENGINEERING EQUIVALENT.

CODE IDENT NO. 19059

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 59 | P4-H (3) | P5-39 | WHITE/RED/YELLOW | #22 | 14 INCHES |
| 60 | P4-H (3) | P5-37 | WHITE/RED/YELLOW | #22 | 14 INCHES |
| 61 | P4-L (3) | P5-29 | RED | #22 | 14 INCHES |
| 62 | P4-L (3) | P5-28 | RED | #22 | 14 INCHES |
| 63 | P4-M | P5-27 | RED | #22 | 14 INCHES |
| 64 | P4-M (3) | P5-26 | RED | #22 | 14 INCHES |
| 65 | P4-M | P5-25 | RED | #22 | 14 INCHES |
| 66 | P4-R (4) | P5-32 | WHITE/RED/ORANGE | #22 | 14 INCHES |
| 67 | P4-N (3) | P5-7 | WHITE/RED | #22 | 14 INCHES |
| 68 | P4-N (3) | TB-17 (2) | WHITE/RED | #22 | 9 INCHES |

NOTES: (6.) MARK REF. DESIGNATIONS P22 THRU P25 ON SIDES OF PLUGS PER MIL-STD-130C. RUBBER STAMP WITH WHITE INK PER DmC PROCESS SPECIFICATION 895010, AND COAT WITH CONFORMAL COATING PER MIL-C-46058.

CODE IDENT NO. 19059

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 69 | TB1-24 (2) | P5-13 | RED | #24 | 12 INCHES |
| 70 | TB1-24 (2) | P5-14 | RED | #24 | 12 INCHES |
| 71 | TB1-22 (2) | P5-12 | RED | #24 | 12 INCHES |
| 72 | TB1-20 (2) | P5-18 | RED | #24 | 12 INCHES |
| 73 | TB1-18 (2) | P5-36 | RED | #24 | 12 INCHES |
| 74 | TB1-16 (2) | P5-42 | RED | #24 | 12 INCHES |
| 75 | TB1-14 (2) | P5-8 | RED | #24 | 12 INCHES |
| 76 | TB1-28 (2) | P5-15 | WHITE | #24 | 12 INCHES |
| 77 | TB1-24 (2) | COMMON CONTACT | RED | #24 | 12 INCHES |
| 78 | TB1-8 (2) | S10-NC DOOR SW. | WHITE | #24 | 8 INCHES |
| 79 | TB1-26 (2) | S10-NO DOOR SW. | WHITE | #24 | 12 INCHES |
| 80 | TB1-25 (2) | P5-35 | WHITE | #24 | 12 INCHES |

NOTES: 7. AFTER WIRING TO P5 (ITEM 2), CONFORMAL COAT BOARD PER MIL-I-46058.

(8.) SOLDER MS77068-2 SOLDER LUG TO TERMINATING END OF WIRE FROM J1-C (ITEM 38).

CODE IDENT NO. 19059



CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 81 | P22-1 (6) | P4-K | WHITE/RED/YELLOW | #26 | 14 INCHES |
| 82 | P22-2 | P4-K | WHITE/RED/YELLOW | #26 | 14 INCHES |
| 83 | P22-3 | P4-K (3) | WHITE/RED/YELLOW | #26 | 14 INCHES |
| 84 | P22-4 | P4-K | WHITE/RED/YELLOW | #26 | 14 INCHES |
| 85 | P22-5 | P4-K | WHITE/RED/YELLOW | #26 | 14 INCHES |
| 86 | P22-6 | P4-K | WHITE/RED/YELLOW | #26 | 14 INCHES |
| 87 | P22-7 | NO CONNECTION | | #26 | 14 INCHES |
| 88 | P22-8 | P4-N | WHITE/RED | #26 | 14 INCHES |
| 89 | P22-9 | NO CONNECTION | | #26 | 14 INCHES |
| 90 | P22-10 | P4-P (4) | VIOLET | #26 | 14 INCHES |
| 91 | P22-11 | P4-P | VIOLET | #26 | 14 INCHES |
| 92 | P22-12 | P4-R | WHITE/RED/ORANGE | #26 | 14 INCHES |
| 93 | P22-13 | P4-R | WHITE/RED/ORANGE | #26 | 14 INCHES |
| 94 | P22-14 | P4-L | RED | #26 | 14 INCHES |

NOTES:
9. TB1 IS 28 LUG TERMINAL STRIP.
10. SOLDER WIRE LEADS ON HARNESS WIRE SIDE OF BOARD WHERE LEAD HOLES HAVE PADS.

CODE IDENT NO. 19059

TITLE: ASSEMBLY, INTERCONNECTION HARNESS

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 95 | P23-1 (6) | P4-E | BLACK | #26 | 14 INCHES |
| 96 | P23-2 | P4-E | BLACK | #26 | 14 INCHES |
| 97 | P23-3 | P4-E (3) | BLACK | #26 | 14 INCHES |
| 98 | P23-4 | P4-E | BLACK | #26 | 14 INCHES |
| 99 | P23-5 | P4-E | BLACK | #26 | 14 INCHES |
| 100 | P23-6 | P4-E | BLACK | #26 | 14 INCHES |
| 101 | P23-7 | P4-F | BLACK | #26 | 14 INCHES |
| 102 | P23-8 | P4-F | BLACK | #26 | 14 INCHES |
| 103 | P23-9 | NO CONNECTION | | | |
| 104 | P23-10 | NO CONNECTION | | | |
| 105 | P23-11 | NO CONNECTION | | | |
| 106 | P23-12 | NO CONNECTION | | | |
| 107 | P23-13 | NO CONNECTION | | | |
| 108 | P23-14 | NO CONNECTION | | | |

NOTES: 11. MARK P/N 19059 ASSEMBLY 101834-100 REV. __ (BLACK) APPROX. AS SHOWN PER DMC PROCESS SPECIFICATION NO. 895010 (FILL BLANK WITH APPROPRIATE REV. LETTER).

CODE IDENT NO. 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| A | NC/I-0555 | RELEASED DRAWING | 3/15/71 | |
| B | A1 0599 | REVISED PER ECO | 5/2/71 | |

| A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|
| | | | X | | | | | | |

MIL - D - 1000 INTENDED USE CATEGORY

INTERFACE CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOL. XX ± ..., XXX ± ...,
FRACT. ± .030 ANG. ± 0°30'

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001

CONTRACT NO.

| | | |
|---|---|---|
| DRAWN | M. PLATUPE | 3-5-72 |
| CHECK | E. Johnson | 3/6/72 |
| ELEC. | | |
| MECH | | |
| DESIGN | | |
| APPR: | | |

APPROVED

APPROVED

101851-100 NEXT ASSY | 11-6-71 USED ON

APPLICATION

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

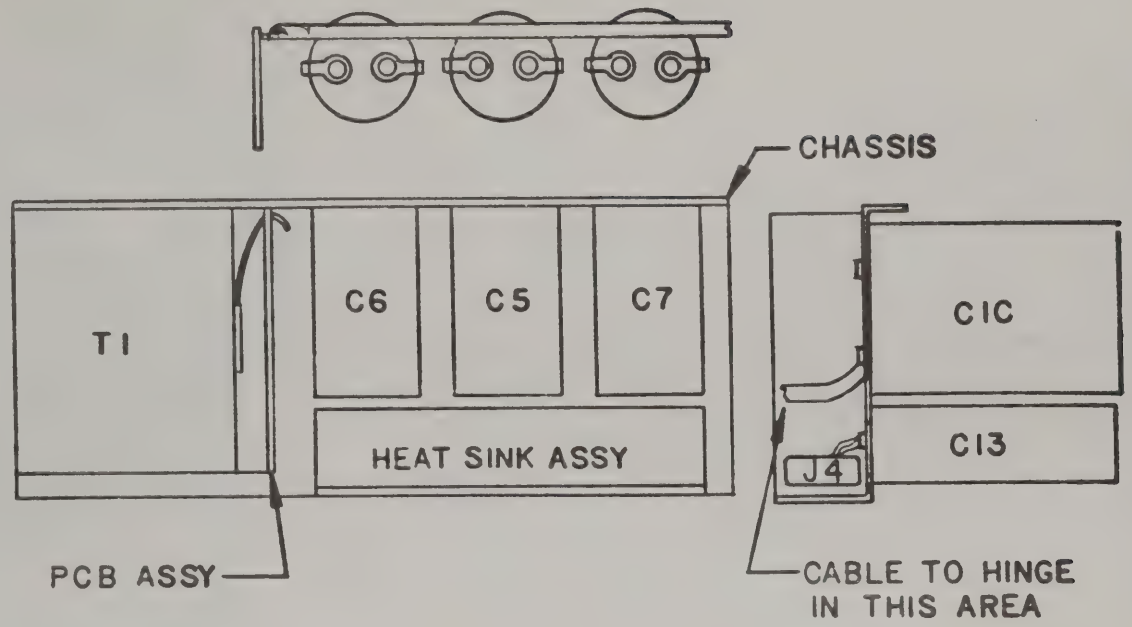
WIRE LIST,
POWER SUPPLY

| CODE IDENT NO | SIZE | | REV |
|---|---|---|---|
| 19059 | A | 101851-861 | B |

SCALE NONE | WEIGHT | SHEET 1 OF 6

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

DmC 201292 REV 3-7-69




1. Install wiring with chassis (item 2) $90^{o}$ out of ASSEMBLED POSITION.
2. Leave service loop in cable going to PCB terminals to allow PC board to swing free of T1 for component replacement.
3. Leave service loop in cable going to T1 to allow T1 to be moved for access to PC board mounting screws.

WIRE ROUTING DIAGRAM

TITLE: WIRE LIST, POWER SUPPLY

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 1 | J4-A (1) | C4- (2) | BLACK | #20 | 5-1/2 INCHES |
| 2 | J4-B | C4- (2) | BLACK | #20 | 5-1/2 INCHES |
| 3 | J4-C | C10- (2) | BLACK | #20 | 6-1/4 INCHES |
| 4 | J4-D | C10- (2) | BLACK | #20 | 6-1/4 INCHES |
| 5 | J4-E | C13- (2) | BLACK | #20 | 3 INCHES |
| 6 | J4-F | C13- (2) | BLACK | #20 | 3 INCHES |
| 7 | J4-H | C7+ (3) | WHITE/RED/YELLOW | #22 | 4-1/2 INCHES |
| 8 | J4-J | C7+ (3) | WHITE/RED/YELLOW | #22 | 4-1/2 INCHES |
| 9 | J4-K | C7+ (3) | WHITE/RED/YELLOW | #22 | 4-1/2 INCHES |
| 10 | J4-L | C10+ (2) | RED | #20 | 6-1/4 INCHES |
| 11 | J4-M | C10+ (2) | RED | #20 | 6-1/4 INCHES |
| 12 | J4-N | C13+ (3) | WHITE/RED | #22 | 3 INCHES |
| 13 | J4-P | Q7E | VIOLET | #22 | 7-1/2 INCHES |
| 14 | J4-R | PC-H | WHITE/RED/ORANGE | #22 | 11 INCHES |
| 15 | J4-W | T1-1 (4) | GRAY | #22 | 16 INCHES |
| 16 | J4-X (1) | T1-2 (4) | GRAY | #22 | 16 INCHES |
| 17 | C4- (2) | C10- (3) | BLACK | #20 | 3 INCHES |
| 18 | C4- (2) | C7- (3) | BLACK | #20 | 8 INCHES |
| 19 | C7- (2) | T1-4 | BLACK | #20 | 12 INCHES |
| 20 | C7- (2) | C5- (3) | BLACK | #20 | 2-1/2 INCHES |

NOTES:
1. Use MS17803-16-20 Crimp Pin (item 43).
2. Use MS25036-B Crimp Lug (item 64).
3. Use MS25036-3 Crimp Lug (item 36).
4. Make twisted pairs - Length indicated is after twisting.
5. Use MS25036-45 Crimp Lug (item 35).

CODE IDENT NO. 19059

DmC DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

DOCUMENT NUMBER 101851-861 REV B

PAGE 3 OF 6

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

DmC 201291 REV 3-27-69

TITLE: WIRE LIST, POWER SUPPLY

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 21 | C10- (2) | C13- (3) | BLACK | #20 | 3 INCHES |
| 22 | C10- (2) | BR4- | BLACK | #20 | 14 INCHES |
| 23 | C13- (3) | BR5- | BLACK | #20 | 7 INCHES |
| 24 | C5- (3) | PC GND | BLACK | #22 | 5-1/2 INCHES |
| 25 | C5- (3) | PC GND | BLACK | #22 | 5-1/2 INCHES |
| 26 | C7+ (3) | PC-C | WHITE/RED/YELLOW | #22 | 7 INCHES |
| 27 | C7+ (3) | PC-C | WHITE/RED/YELLOW | #22 | 6-1/2 INCHES |
| 28 | Q1E | PC-A | YELLOW | #22 | 4 INCHES |
| 29 | Q1E | PC-A | YELLOW | #22 | 4 INCHES |
| 30 | PC-F | Q2C | BLUE | #22 | 8 INCHES |
| 31 | Q2C | Q1C | BLUE | #22 | 5 INCHES |
| 32 | Q1C | BR1+ | BLUE | #20 | 4 INCHES |
| 33 | BR1+ | C4+ (3) | BLUE | #20 | 7 INCHES |
| 34 | C10+ (3) | BR4+ | RED | #20 | 13 INCHES |
| 35 | | | | | |
| 36 | BR4+ | PC-E | RED | #22 | 4 INCHES |
| 37 | C5+ (3) | Q6C | BLUE | #22 | 4 INCHES |
| 38 | C5+ (3) | PC-V | BLUE | #22 | 5 INCHES |
| 39 | Q6E | PC-J | YELLOW | #22 | 6 INCHES |
| 40 | C6- (3) | Q7C | BLUE | #22 | 4 INCHES |
| 41 | C6- (3) | PC-L | BLUE | #22 | 4 INCHES |

NOTES:

CODE IDENT NO. 19059

DmC DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

DOCUMENT NUMBER 101851-861 REV B

TITLE: WIRE LIST, POWER SUPPLY

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 42 | C13+ (3) | R13-2 | WHITE/RED | #22 | 7 INCHES |
| 43 | R13-2 | PC-B | WHITE/RED | #22 | 8 INCHES |
| 44 | R13-1 | BR5+ | WHITE/RED | #22 | 3-1/2 INCHES |
| 45 | | | | | |
| 46 | | | | | |
| 47 | T1-3 | BR1-AC1 | GRAY | #22 | 11 INCHES |
| 48 | T1-5 | BR1-AC2 | GRAY | #22 | 11 INCHES |
| 49 | T1-6 | PC-T | GRAY | #24 | 7 INCHES |
| 50 | T1-7 | PC-U | GRAY | #24 | 7 INCHES |
| 51 | T1-8 | PC-N | GRAY | #24 | 8 INCHES |
| 52 | T1-9 | PC-P | GRAY | #24 | 8 INCHES |
| 53 | T1-10 | CHASSIS LUG (5) | BLACK | #22 | 8 INCHES |
| 54 | T1-11 | BR4-AC1 | GRAY | #22 | 9 INCHES |
| 55 | T1-12 | BR4-AC2 | GRAY | #22 | 9 INCHES |
| 56 | T1-13 | BR5-AC1 | GRAY | #22 | 10 INCHES |
| 57 | T1-14 | BR5-AC2 | GRAY | #22 | 10 INCHES |
| 58 | Q2B | PC-D | GREEN | #24 | 7 INCHES |
| 59 | Q6B | PC-S | GREEN | #24 | 7-1/2 INCHES |
| 60 | C6+ (3) | PC-R | GREEN | #24 | 4 INCHES |
| 61 | Q7B | PC-K | GREEN | #24 | 5 INCHES |

NOTES: 6. All wires to T1 must be covered with protective sleeving,(item 61) where wires pass under and across circuit side of PC board (item 5).

CODE IDENT NO. 19059

TITLE: WIRE LIST, POWER SUPPLY

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| 62 | Q7E | PC-M | VIOLET | #22 | 5 INCHES |
| 63 | Q1B | Q2-E | YELLOW | #22 | 5 INCHES |
| 64 | | | | | |
| 65 | | | | | |
| 66 | | | | | |
| 67 | | | | | |
| 68 | | | | | |
| 69 | | | | | |

NOTES:

CODE IDENT NO. 19059

DmC DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

DOCUMENT NUMBER 101851-861 REV B

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED DWG. | 7/3/73 | |

INTERFACE CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOL. XX ± .__, XXX ± .__,
FRACT. ± .030 ANG. ± 0°30'

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001

| | |
|---|---|
| CONTRACT NO. | |
| DRAWN | D. Johnson 7-2-73 |
| CHECK | |
| ELEC. | |
| MECH | 7.9.73 |
| DESIGN | |
| APPR: | |
| APPROVED | 7/3/73 |
| APPROVED | 7/9/73 |

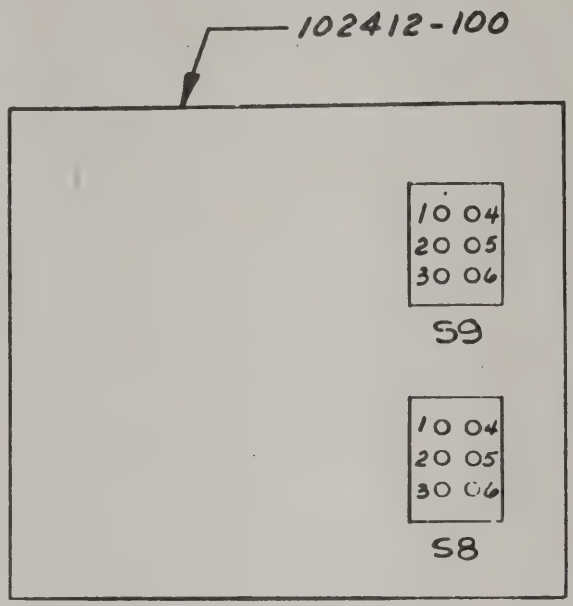
DmC DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

APP. LIST, WIRING PANEL

| NEXT ASSY | USED ON |
|---|---|
| 102412-100 | TT-675/T |

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | A | 102412-860 | |

| APPLICATION | DO NOT SCALE DRAWING | SCALE | WEIGHT | SHEET 1 of 3 |
|---|---|---|---|---|




| SIZE | CODE IDENT NO. | | REV |
|---|---|---|---|
| A | 19059 | 102412-860 | |
| SCALE NONE | | SHEET 2 of 3 | |

TITLE:

| WIRE NO. | FROM | TO | COLOR | GAUGE | LENGTH |
|---|---|---|---|---|---|
| | S8-2 | J5-31 | White | #24 | 18 Inches |
| | S9-2 | J5-17 | White | #24 | 18 Inches |
| | S9-3 | DS3-1 | White | #24 | 4 Inches |
| | DS3-2 | J5-15 | White/Red/Green | #24 | 18 Inches |
| | S9-5 | J5-33 | Black | #24 | 18 Inches |
| | S9-6 | J5-35 | White | #24 | 18 Inches |
| | S8-1 | J5-3 | Black | #24 | 18 Inches |

NOTES:
1. Reference Assembly Drawing 102412-100
2. Tag Wires going to J5 Connector
3. Tag White/Red/Green Wire to DS3-2 (+POS)
4. Tag White Wire to DS3-1 (-NEG)

CODE IDENT NO. 19059

DmC
DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

DOCUMENT NUMBER 102412-860 REV





CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | Released Drawing | 4/25/73 | |
| A | 0798 -NC11 | SEE ECO | 8/7/73 | |

NOTES:

1. SOURCES SHALL BE AS LISTED OR ENGINEERING APPROVED EQUIVALENT.

A B C D E F G H I J X

MIL - D - 1000 INTENDED USE CATEGORY

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOL. XX ± —, XXX ± .—,
FRACT. ± .030 ANG. ± 0°30'

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001

CONTRACT NO.

| | | |
|---|---|---|
| DRAWN | R. Heacock | 4-25-73 |
| CHECK | D. Johnson | 4-26-73 |
| ELEC. | | |
| MECH | | |
| DESIGN | | |
| APP'D | | |
| APPROVED | | 4/27/73 |
| APPROVED | | |

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

TT-649/UY LINE PRINTER - TOP DRAWING

BUNKER-RAMO

| NEXT ASSY | USED ON |
|---|---|
| | TT-649/UY |
| APPLICATION | |

DO NOT SCALE DRAWING

| CODE IDENT NO. | SIZE | | REV. |
|---|---|---|---|
| 19059 | A | 102400-300 | A |
| SCALE NONE | WEIGHT | | SHEET 0 OF 47 |

DmC 20292 REV 3-7-69

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059
RELEASED DWG: _____ DATE: _____ APPROVED: Hewitt

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 1 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 2 | 4 | 0 | 0 | - | 100 | N/C | 1 | PRINTER, MAIN ASSEMBLY | | X | | X | X | | | |
| 2 | | 1 | 0 | 1 | 7 | 5 | 2 | | F | 1 | SHAFT, GEAR DRIVE ROLLER | | X | | X | | | | |
| 3 | | 1 | 0 | 1 | 7 | 7 | 8 | | E | 1 | BRACKET, PEEL OFF | | X | | X | | | | |
| 4 | | 1 | 0 | 2 | 2 | 0 | 4 | | N/C | 1 | LATCH, DOOR | | X | X | | | | | |
| 5 | | 1 | 0 | 1 | 7 | 7 | 2 | -001 | D | 1 | PLATE, ROLLER - AS SHOWN | | X | | X | | | | |
| 6 | | 1 | 0 | 1 | 7 | 7 | 2 | -002 | D | 1 | PLATE, ROLLER - OPPOSITE | | X | | X | | | | |
| 7 | | 1 | 0 | 1 | 8 | 4 | 1 | -003 | B | 1 | RFI GASKET, REAR PLATE | | | | X | | | | |
| 8 | | 1 | 0 | 1 | 7 | 7 | 3 | | B | 1 | ROLLER, PRINT HEAD | | X | | X | | | | |
| 9 | | 1 | 0 | 1 | 7 | 9 | 8 | | B | 1 | BUSHING, COMMON CONTACT | | X | | X | | | | |
| 10 | | 1 | 0 | 2 | 1 | 7 | 7 | | A | 1 | RETAINER, TRANSFORMER | | | X | | | | | |
| 11 | | 1 | 0 | 1 | 8 | 6 | 4 | | F | 1 | DARK ADAPTION KIT | | X | X | | | | | |
| 12 | | 1 | 0 | 2 | 4 | 0 | 6 | | N/C | 1 | PLATE, MTG REAR CONN. | | X | X | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | 1 | 0 | 1 | 9 | 6 | 9 | | B | 1 | BAR, HEAD ADJUSTMENT | | X | | X | | | | |
| 17 | | | 1 | 0 | 1 | 9 | 6 | 9-099 | B | 1 | ANGLE BAR | | X | | X | | | | |
| 18 | | | 9 | - | M | S | 1 | 22076 | | 1 | INSERT, #4-40 x .112 LONG | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 2 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 1 | 7 | 1 | 6 | | C | 1 | SPUR GEAR-HELICAL | | X | | X | | | | |
| 2 | | | 1 | 0 | 1 | 7 | 1 | 6-099 | C | 1 | HUB | | X | | X | | | | |
| 3 | | | 1 | 0 | 1 | 7 | 1 | 6-097 | C | 1 | GEAR | | X | | X | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | 1 | 0 | 1 | 8 | 5 | 7 | | B | 1 | IDLER, TAKE UP | | X | | X | | | | |
| 6 | | | 1 | 0 | 1 | 8 | 5 | 7-099 | B | 1 | IDLER | | X | | X | | | | |
| 7 | | | 9 | - | M | S | 1 | 22079 | | 1 | INSERT, #8-32 x .168 LONG | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | 1 | 0 | 1 | 8 | 6 | 2 | | C | 2 | HOLDER, LAMP BRACKET | | X | | X | | | | |
| 10 | | | 1 | 0 | 1 | 8 | 6 | 2-099 | C | 1 | HOLDER | | X | | X | | | | |
| 11 | | | 9 | 2 | 9 | 0 | 0 | 7-0002 | | 2 | NUT, FLOATING #6-32 | | | | | | | LAC-632-2 | PENN ENG. |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | 1 | 0 | 1 | 7 | 7 | 7 | | E | 1 | RETAINER, CARD | | X | | X | | | | |
| 14 | | | 1 | 0 | 1 | 7 | 7 | 7-099 | E | 1 | RETAINER | | X | | X | | | | |
| 15 | | | 9 | - | M | S | 2 | 0426A3-6 | | 4 | RIVET, 100° FLAT HEAD | | | | | | | | |
| 16 | | | 9 | 2 | 9 | 0 | 0 | 3-0001 | | 2 | RECEPTACLE 1/4 TURN | | | | | | | 82-35-295-15 | SOUTHCO/LION |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | | 1 | 0 | 2 | 1 | 8 | 7 | | N/C | 1 | INFORMATION PLATE | | X | X | | | | | |
| 19 | | | 1 | 0 | 2 | 1 | 8 | 7-500 | N/C | REF | ARTWORK, INFORMATION PLATE | | X | X | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 3 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | 1 | 0 | 2 | 4 | 0 | 5 | -100 | N/C | 1 | COVER ASSY, PROTECTION CIRCUITS | | X | | X | | | | |
| 5 | | | 1 | 0 | 1 | 7 | 6 | 4-097 | G | 1 | COVER | | X | | X | | | | |
| 6 | | | 9 | 2 | 9 | 0 | 0 | 8-0001 | | 2 | SCREW, CAPTIVE #4-40 | | | | | | | D7500-4-B-1 | DEUTSCH CORP. |
| 7 | | | 8 | 9 | 5 | 0 | 2 | 7 | N/C | REF | FINISH AND PAINT SPECIFICATION | | | X | | | | | |
| 8 | | | 1 | 0 | 1 | 7 | 6 | 4-500 | C | REF | SILKSCREEN, COVER | | X | | X | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | 1 | 0 | 1 | 7 | 0 | 7 | -100 | B | 1 | ASSEMBLY, MOTOR | | X | | X | X | | | |
| 11 | | | 1 | 0 | 1 | 7 | 0 | 7 | L | 1 | MOTOR | | X | | X | | | | |
| 12 | | | | 1 | 0 | 1 | 7 | 07-600 | L | REF | MOTOR, CONTROL SPECIFICATION | | X | | X | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | 9 | - | M | S | 2 | 5036-45 | | 6 | LUG, CRIMP INSULATED | | | | | | | | |
| 15 | | | 9 | - | 1/8 | D | 1 | A | | 1 | BRAID, TUBULAR SHIELD | | | | | | | 11" LONG | QQ-B-575 |
| 16 | | | 9 | - | E | - | 2 | 6-BLACK | | 1" | WIRE, ELEC-HOOK UP | | | | | | | 26 AWG, TFE STRANDED-BLK | MIL-W-16878/4 |
| 17 | | | 9 | - | C | L | 1 | -250-BLACK | | A/R | INSULATION, SLEEVING | | | | | | | | MIL-I-23053/5 |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY . BUNKER RAMO

DOCUMENT NO. 102400-300 REV
SHEET 4 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 1 | 7 | 5 | 1 | | H | 1 | ROLLER, DRIVE | | X | | X | | | | |
| 2 | | | 1 | 0 | 1 | 7 | 5 | 1-099 | H | 1 | TUBING | | X | | X | | | | |
| 3 | | | 1 | 0 | 1 | 7 | 5 | 1-097 | H | 1 | ROD | | X | | X | | | | |
| 4 | | | 1 | 0 | 1 | 7 | 5 | 1-095 | H | AR | RUBBER, SILICONE | | X | | X | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | 1 | 0 | 1 | 7 | 3 | 7 | -100 | E | 1 | ROLLER, DRIVE COMMON | | X | | X | | | | |
| 7 | | | 1 | 0 | 1 | 7 | 3 | 7-099 | E | 1 | ROLLER | | X | | X | | | | |
| 8 | | | 1 | 0 | 1 | 7 | 3 | 7-095 | E | 2 | BUSHING | | X | | X | | | | |
| 9 | | | 1 | 0 | 2 | 2 | 0 | 5 | B | 1 | PULLEY, BELT | | X | | X | | | | |
| 10 | | | 9- | M | S | 1 | 8 | 066-1 | | 2 | SET SCREW NO.4-40 X .12LG | | | | | | | | |
| 11 | | | 9 | - | C | L | 1 | -500-CL | | AR | INSULATION, SLEEVING | | | | | | | COLOR: CLEAR | MIL-I-23053/5 |
| 12 | | | 9 | - | G | R | A | DE "C"-BLUE | | AR | RETAINING COMPOUND | | | | | | | LIQUID COLOR CODE: BLUE | MIL-S-22473 |
| 13 | | | 9 | | M | M | M | -A-130 | | AR | CONTACT, ADHESIVE | | | | | | | | MMM-A-130 |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | 1 | 0 | 2 | 4 | 0 | 3 | -100 | N/C | 1 | COVER, CONSOLE ASSY | | X | | X | | | | |
| 16 | | | 1 | 0 | 1 | 7 | 6 | 8-097 | H | 1 | COVER | | X | | X | | | | |
| 17 | | | | 1 | 0 | 1 | 7 | 68-501 | B | REF | SILKSCREEN, COVER | | X | | X | | | | |
| 18 | | | | 1 | 0 | 1 | 7 | 68-502 | C | REF | SILKSCREEN, PRINTER DIAGRAM | | X | | X | | | | |
| 19 | | | | 8 | 9 | 5 | 0 | 27 | N/C | REF | FINISH AND PAINT SPECIFICATION | | | X | | | | | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059
RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY . BUNKER RAMO | DOCUMENT NO. 102400-300 SHEET 5 OF 47 | REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄ INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 1 | 0 | 1 | 7 | 68-503 | A | REF | LIFT SILKSCREEN COVER | | X | | X | | | | |
| 2 | | | 9 | 2 | 9 | 0 | 1 | 5-0002 | | 12 | STUD, 1/4 TURN OVAL HEAD | | | | | | | 82-11-240-16 | SOUTHCO/LION |
| 3 | | | 9 | 2 | 9 | 0 | 1 | 5-0003 | | 8 | STUD, 1/4 TURN OVAL HEAD | | | | | | | 82-11-300-16 | SOUTHCO/LION |
| 4 | | | 9 | 2 | 9 | 0 | 1 | 6-0001 | | 22 | RETAINER, SPLIT RING | | | | | | | 82-32-101-17 | SOUTHCO/LION |
| 5 | | | 9 | 2 | 9 | 0 | 1 | 5-0001 | | 2 | STUD, 1/4 TURN OVAL HEAD | | | | | | | 82-11-260-16 | SOUTHCO/LION |
| 6 | | | 9 | 2 | 3 | 0 | 0 | 1-0001 | | A/R | ELASTOMER, CONDUCTIVE TYPE C53 | | | | | | | 20-0214-1515 | CAL-METEX CORP. |
| 7 | | | 9 | 2 | 2 | 0 | 0 | 3-0001 | | AR | ADHESIVE SEALANT | | | | | | | ECCOSHIELD RVS | EMERSON & CUMMING INC. |
| 8 | | | 9 | - | M | I | L | -S-8660 | | AR | GREASE, SILICONE | | | | | | | | MIL-S-8660 |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | 1 | 0 | 1 | 7 | 5 | 5 | -100 | D | 1 | ASSEMBLY, LAMP BRACKET | | X | | X | X | | | |
| 12 | | | 1 | 0 | 1 | 7 | 5 | 5 | D | 1 | BRACKET, LAMP | | X | | X | | | | |
| 13 | | | 9 | - | M | S | 2 | 5237-330 | | 3 | LAMP, 14V | | | | | | | | |
| 14 | | | 9 | 2 | 1 | 0 | 0 | 1-0001 | | 3 | LIGHT, ILLUMINATION | | | | | | | 855RUI-330 | SLOAN CO. |
| 15 | | | 9 | - | E | - | 2 | 2-WHT/RED | | AR | WIRE, 22 AWG STRANDED WHT/RED TEFLON | | | | | | | | MIL-W-16878/4 |
| 16 | | | 9 | - | E | - | 2 | 4-BLACK | | AR | WIRE, 24 AWG STRANDED BLACK, TEFLON | | | | | | | | MIL-W-16878/4 |
| 17 | | | 9 | - | E | - | 2 | 4-BLACK | | AR | WIRE, 24 AWG STRANDED BLACK, TEFLON | | | | | | | | MIL-W-16878/4 |
| 18 | | | 9 | - | C | L | 1 | -125-BLACK | | AR | INSULATION, SLEEVING | | | | | | | | MIL-I-23053/5 |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO 102400-300 SHEET 6 OF 47 REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | I | - | B | -4 | | AR | TAPE, LACING | | | | | | | | MIL-T-43435 |
| 2 | | | 9 | - | M | S | 2 | 5036-45 | | 2 | LUG, CRIMP INSULATED | | | | | | | | |
| 3 | | | 9 | - | S | N | 6 | OWRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | 1 | 0 | 2 | 4 | 0 | 1 | -100 | N/C | 1 | CONSOLE, MACHINING ASSEMBLY | | X | | X | | | | |
| 7 | | | 1 | 0 | 1 | 7 | 9 | 3-003 | D | 1 | CONSOLE, CASTING | | X | | X | | | | |
| 8 | | | | 1 | 0 | 1 | 7 | 93 | D | 1 | CASTING, INVESTMENT | | X | | X | | | | |
| 9 | | | | 1 | 0 | 1 | 7 | 93-099 | D | 1 | BLOCK | | X | | X | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | 9 | - | M | S | 2 | 1209C0215 | | 8 | INSERT, #2-56 x .129 LG-LOCKING | | | | | | | | |
| 12 | | | 9 | - | M | S | 2 | 1209C0415 | | 28 | INSERT, #4-40 x .168 LG-LOCKING | | | | | | | | |
| 13 | | | 9 | - | M | S | 1 | 22116 | | 22 | INSERT, #4-40 x .168 LONG | | | | | | | | |
| 14 | | | 9 | - | M | S | 1 | 22078 | | 4 | INSERT, #6-32 x .138 LONG | | | | | | | | |
| 15 | | | 9 | - | M | S | 1 | 22118 | | 6 | INSERT, #6-32 x .207 LONG | | | | | | | | |
| 16 | | | 9 | - | M | S | 2 | 1209C0615 | | 2 | INSERT, #6-32 x .207 LG-LOCKING | | | | | | | | |
| 17 | | | 9 | - | M | S | 1 | 22079 | | 5 | INSERT, #8-32 x .164 LONG | | | | | | | | |
| 18 | | | 9 | - | M | S | 1 | 22119 | | 6 | INSERT, #8-32 x .246 LONG | | | | | | | | |
| 19 | | | 9 | - | M | S | 2 | 1209C0815 | | 1 | INSERT, #8-32 x .246 LG-LOCKING | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 7 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | M | S | 2 | 1209F1-15 | | 2 | INSERT, #10-32 x .285 LG-LOCKING | | | | | | | | |
| 2 | | | 9 | - | M | S | 1 | 22123 | | 4 | INSERT, #3/8-16 x .562 LONG | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | | 9 | - | M | S | 1 | 71585 | | 2 | PIN, SPRING, .19 DIA x .44 LONG | | | | | | | | |
| 5 | | | 9 | - | M | 2 | 4 | 243/1-B304 | | 40 | RIVET, BLIND | | | | | | | | MIL-R-24243/1 |
| 6 | | | 9 | 2 | 9 | 0 | 0 | 3-0001 | | 20 | RECEPTACLE, LEAF SPRING | | | | | | | 82-35-295-15 | SOUTHCO/LION |
| 7 | | | 9 | - | M | I | L | -A-14042-15 | | AR | EPOXY, ADHESIVE | | | | | | | | MIL-A-14042-15 |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | 8 | 9 | 5 | 0 | 2 | 6 | N/C | REF | PAINTING INSTRUCTIONS, CONSOLE | | | X | | | | | |
| 10 | | | 8 | 9 | 5 | 0 | 2 | 7 | N/C | REF | FINISH AND PAINT SPECIFICATION | | | X | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | 1 | 0 | 2 | 4 | 0 | 8 | -100 | N/C | 1 | ASSEMBLY, DOOR | | X | | X | | X | | |
| 14 | | | 1 | 0 | 2 | 4 | 0 | 2 -100 | N/C | 1 | DOOR, MACHINING ASSEMBLY | | X | | X | | | | |
| 15 | | | | 1 | 0 | 1 | 7 | 95 | E | 1 | DOOR, CASTING | | X | | X | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 9 | - | M | S | 122076 | | 6 | INSERT, #4-40 x .112 LONG | | | | | | | | |
| 18 | | | | 9 | - | M | S | 122116 | | 2 | INSERT, #4-40 x .168 LONG | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 8 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | - | M | S | 122079 | | 2 | INSERT, #8-32 x .164 LONG | | | | | | | | |
| 2 | | | | 9 | - | M | S | 21209C0815 | | 4 | INSERT, #8-32 x .246 LG-LOCKING | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | | 1 | 0 | 1 | 7 | 2 | 4-001 | E | 1 | ARM, DRIVER IDLER-AS SHOWN | | X | | X | | | | |
| 5 | | | 1 | 0 | 1 | 7 | 2 | 4-002 | E | 1 | ARM, DRIVER IDLER-OPPOSITE | | X | | X | | | | |
| 6 | | | 1 | 0 | 1 | 7 | 3 | 2 | C | 1 | PAPER CUTTER | | X | | X | | | | |
| 7 | | | 1 | 0 | 1 | 7 | 6 | 6 | C | 1 | ROLLER DOOR, LOWER | | X | | X | | | | |
| 8 | | | 1 | 0 | 1 | 7 | 6 | 7 | B | 2 | ARM, DOOR, LOWER | | X | | X | | | | |
| 9 | | | 1 | 0 | 1 | 9 | 7 | 3 | A | 3 | PAPER GUIDE | | X | | X | | | | |
| 10 | | | 1 | 0 | 1 | 8 | 8 | 1 | B | 4 | WASHER, DOOR | | X | | X | | | | |
| 11 | | | | 9 | - | N | A | S620C6 | | 1 | WASHER, FLAT | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | 1 | 0 | 1 | 7 | 2 | 8 | C | 1 | HINGE, DOOR | | X | | X | | | | |
| 14 | | | | 9 | - | M | S | 35822-2C | | 1 | HINGE, CRES, .090 THK | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | 1 | 0 | 1 | 9 | 7 | 8 | A | 1 | ROLLER, RUBBER, IDLER | | X | X | | | | | |
| 17 | | | | 1 | 0 | 1 | 9 | 78-095 | A | 1 | ROD | | X | X | | | | | |
| 18 | | | | 1 | 0 | 1 | 9 | 78-097 | A | AR | RUBBER, SILICONE | | X | X | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059
RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY -BUNKER RAMO | DOCUMENT NO. 102400-300 SHEET 9 OF 47 | REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 | 0 | 1 | 9 | 1 8 | A | 1 | DECAL, PAPER ROUTING | | X | | X | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | 9 | 2 | 7 | 0 | 0 1-0001 | | 2 | SPRING, COMPRESSION, UPPER | | | | | | | LC-026B-12 | LEE SPRING CO. |
| 5 | | | 9 | 2 | 7 | 0 | 0 1-0003 | | 2 | SPRING, COMPRESSION, LOWER | | | | | | | LC-018B-9 | LEE SPRING CO. |
| 6 | | | 9 | 2 | 6 | 0 | 0 1-0002 | | 4 | BEARING, PRECISION BALL | | | | | | | SSRI-418LL | NMB CO. LTD. |
| 7 | | | 9 | 2 | 9 | 0 | 0 4-0003 | | 6 | SCREW, SHOULDER #8-32 | | | | | | | PL-8 | W.M. BERG |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | 9 | - | M | S | 5 1957-12 | | 6 | SCREW, PAN HD #4-40 x .19 LG | | | | | | | | |
| 10 | | | 9 | - | M | S | 5 1957-15 | | 3 | SCREW, PAN HD #4-40 x .38 LG | | | | | | | | |
| 11 | | | 9 | - | M | S | 2 1295-7 | | 2 | SCREW, SOCKET HD #4-40 x .31 LG | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |
| 13 | | | 9 | - | M | S | 1 5795-804 | | 9 | WASHER, FLAT #4 | | | | | | | | |
| 14 | | | 9 | - | M | S | 3 5338-135 | | 6 | WASHER, LOCK-SPRING #4 | | | | | | | | |
| 15 | | | 9 | - | M | S | 2 1083C04 | | 3 | NUT, HEX, MINIATURE #4-40 | | | | | | | | |
| 16 | | | 9 | - | M | S | 1 71586 | | 2 | PIN, CRES SPRING | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | |
| 18 | | | 9 | - | C | L | 1 -187-BLACK | | AR | INSULATION SLEEVING 3/16 DIA | | | | | | | | MIL-I-23053/5 |
| 19 | | | 9 | - | G | R | A DE "C"-BLUE | | AR | RETAINING COMPOUND | | | | | | | LIQUID COLOR | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY .BUNKER RAMO

DOCUMENT NO. 102400-300 REV -
SHEET 10 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 2 | 4 | 0 | 7 | -100 | N/C | 1 | CONTROL PANEL ASSEMBLY | | | X | | | X | | |
| 2 | | | 1 | 0 | 1 | 8 | 1 | 9 | C | 1 | CONTROL PANEL | | X | X | | | | | |
| 3 | | | | 1 | 0 | 1 | 8 | 19-500 | C | REF | SILKSCREEN, CONTROL PANEL | | X | X | | | | | |
| 4 | | | | 8 | 9 | 5 | 0 | 15 | N/C | REF | FINISH AND PAINT SPECIFICATION | | | X | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | 1 | 0 | 1 | 9 | 2 | 3 | A | 1 | BRACKET, RESISTOR | | X | X | | | | | |
| 7 | | | 1 | 0 | 1 | 8 | 6 | 5-097 | C | 1 | LENS, SLEW (WHITE) | | X | X | | | | | |
| 8 | | | 1 | 0 | 1 | 8 | 6 | 5-099 | C | 1 | LENS, ACK (YELLOW) | | X | X | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | 1 | 0 | 1 | 8 | 0 | 6 | D | 1 | BRACKET BREAKER/TIME METER | | X | X | | | | | |
| 11 | | | | 1 | 0 | 1 | 8 | 06-099 | D | 1 | BRACKET | | X | X | | | | | |
| 12 | | | | 9 | 2 | 9 | 0 | 07-0001 | | 2 | FASTENER, FLOATING #4-40 | | | | | | | LAC-440-2 | PENN ENG. |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | 9 | - | M | S | 2 | 7716-21 | | 1 | SWITCH, TOGGLE (SP3T) | | | | | | | | |
| 15 | | | 9 | - | M | S | 2 | 7716-23 | | 2 | SWITCH, TOGGLE (SPDT) | | | | | | | | |
| 16 | | | 9 | - | M | S | 2 | 7716-26 | | 1 | SWITCH, TOGGLE | | | | | | | | |
| 17 | | | 9 | - | M | S | 2 | 7717-23 | | 1 | SWITCH, TOGGLE (DPDT) | | | | | | | | |
| 18 | | | 9 | - | M | S | 2 | 885/8-001 | | 2 | SWITCH, HOUSING | | | | | | | | |
| 19 | | | 9 | - | M | 3 | 9 | 019/1-47 | | 2 | BREAKER, CIRCUIT | | | | | | | | MIL-C-39010 |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY . BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 11 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | L | H | 7 | 3LC12GT2 | | 2 | HOLDER AND LENS (GREEN) | | | | | | | | MIL-L-3661/8 |
| 2 | | | 9 | 0 | 9 | 0 | 0 | 8-0001 | | 1 | LAMP T1-3/4 | | | | | | | GE377 | GEN ELEC. |
| 3 | | | 9 | - | M | S | 2 | 5237-330 | | 3 | LAMP T1-3/4 | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | 9 | 1 | 1 | 0 | 0 | 0-0001 | | 1 | METER, TIME | | | | | | | K49201-P6-2 | A.W. HAYDON |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | 9 | 0 | 0 | 0 | 0 | 0-0003 | | 1 | RESISTOR, 18 OHM, 5W, 5% | | | | | | | 4567 | OHMITE |
| 8 | | | 9 | - | R | C | 0 | 7GF103J | | 1 | RESISTOR, 10K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 9 | | | 9 | - | S | E | 1 | 8-5-E-01 | | 4 | TERMINAL, STANDOFF | | | | | | | | MIL-T-55155/18 |
| 10 | | | 9 | - | M | S | 2 | 5036-45 | | 17 | LUG, CRIMP INSULATED-YELLOW | | | | | | | | MIL-T-7928 |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | 9 | - | M | S | 5 | 1957-15 | | 2 | SCREW, PAN HD #4-40 x .38 LG | | | | | | | | |
| 13 | | | 9 | - | M | S | 1 | 5795-804 | | 2 | WASHER, FLAT #4 | | | | | | | | |
| 14 | | | 9 | - | M | S | 1 | 5795-802 | | 4 | WASHER, FLAT #2 | | | | | | | | |
| 15 | | | 9 | - | M | S | 3 | 5338-134 | | 4 | WASHER, SPRING-LOCK #2 | | | | | | | | |
| 16 | | | 9 | 2 | 9 | 0 | 1 | 2-0001 | | 2 | WASHER, SPRING #5/8 | | | | | | | 3502-28-01 | SHAKEPROOF |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | | | 9 | - | N | A | S | 671C2 | | 4 | NUT, PLAIN HEX #2-56 | | | | | | | | |

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | M | S | 2 1803C04 | | 2 | NUT, HEX, LOCKING #4-40 | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | 9 | - | E | - | 2 2-GREY | | AR | WIRE, ELEC-HOOK UP 22 AWG | | | | | | | | MIL-W-16878/4 |
| 6 | | | 9 | - | E | - | 2 4-BLACK | | AR | WIRE, ELEC-HOOK UP 24 AWG | | | | | | | | MIL-W-16878/4 |
| 7 | | | 9 | - | E | - | 2 2 -WHT/RED | | AR | WIRE, ELEC-HOOK UP 22 AWG | | | | | | | | MIL-W-16878/4 |
| 8 | | | 9 | - | E | - | 2 4-WHITE | | AR | WIRE, ELEC-HOOK UP 24 AWG | | | | | | | | MIL-W-16878/4 |
| 9 | | | 9 | - | E | - | 2 4/WHT/RED/YEL | | AR | WIRE, ELEC-HOOK UP 24 AWG | | | | | | | | MIL-W-16878/4 |
| 10 | | | 9 | - | E | - | 2 4/WHT/RD/YEL | | AR | WIRE, ELEC-HOOK UP 24 AWG | | | | | | | | MIL-W-16878/4 |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | 9 | - | 1/ | 16 | C IA | | AR | BRAID, WIRE, TUBULAR | | | | | | | | QQ-B-575 |
| 13 | | | 9 | - | C | L | 1 -188-BLACK | | AR | INSULATION, SLEEVING | | | | | | | | MIL-I-23053/5 |
| 14 | | | 9 | - | G | R | A DE "C"-BLUE | | AR | RETAINING COMPOUND | | | | | | | LIQUID COLOR CODE: BLUE | MIL-S-22473 |
| 15 | | | | | | | | | | | | | | | | | | |
| 16 | | | 9 | - | S | N | 6 OWRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 17 | | | 1 | 0 | 2 | 4 | 0 4-320 | N/C | REF | DIAGRAM, INTERCONNECTION | | | X | | X | X | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY . BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 13 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 1 | 8 | 1 | 0 | -101 | E | 1 | ASSEMBLY, MAIN POWER SUPPLY | | X | | X | | X | | |
| 2 | | | 1 | 0 | 1 | 8 | 4 | 4-100 | D | 1 | PLATE, MOUNTING | | X | | X | | X | | |
| 3 | | | | 1 | 0 | 1 | 8 | 44 | C | 1 | PLATE | | X | | X | | | | |
| 4 | | | | 1 | 0 | 1 | 8 | 66 | B | 6 | CLIP, CAPACITOR | | X | | X | | | | |
| 5 | | | | 1 | 0 | 1 | 8 | 59 | B | 1 | BRACKET, MOUNTING | | X | | X | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 9 | - | M | S | 20426AD4-3 | | 6 | RIVET, SOLID-100°FLAT | | | | | | | | |
| 8 | | | | 9 | - | M | S | 20426AD2-3 | | 6 | RIVET, SOLID-100°FLAT | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 9 | 2 | 9 | 0 | 07-0003 | | 7 | FASTENER, FLOATING- LOCK | | | | | | | LAC-832-2 | PENN ENG. |
| 11 | | | | 9 | 2 | 9 | 0 | 14-0001 | | 3 | NUT, RIGHT ANGLE, #4-40 | | | | | | | RM22LHA27M-22-40 | ESNA |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | 1 | 0 | 1 | 8 | 4 | 3-100 | D | 1 | SUBASSY, CHASSIS | | X | | X | | | | |
| 14 | | | | 1 | 0 | 1 | 8 | 43 | C | 1 | CHASSIS POWER SUPPLY | | X | | X | | | | |
| 15 | | | | 9 | - | M | S | 20615-2M2 | | 2 | RIVET, SOLID-UNIVERSAL | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 9 | 2 | 9 | 0 | 14-0001 | | 1 | NUT, RIGHT ANGLE, FLOAT #4-40 | | | | | | | RM22LHA27M-22-40 | ESNA |
| 18 | | | | 9 | 2 | 9 | 0 | 07-0004 | | 10 | FASTENER, FLOAT, LOCK #4-40 | | | | | | | LAC-440-1 | PENN ENG. |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 14 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 | 0 | 1 | 8 | 4 | 2 | D | 1 | BRACKET, CAPACITOR | | X | | X | | | | |
| 2 | | | 1 | 0 | 1 | 8 | 1 | 5 | G | 1 | TRANSFORMER | | X | | X | | | | |
| 3 | | | | 1 | 0 | 1 | 8 | 15-600 | G | REF | TRANSFORMER SPECIFICATION | | X | | X | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | 9 | 1 | 0 | 0 | 0 | 3-0001 | | 2 | BRACKET, MOUNTING, CAPACITOR | | | | | | | 115058-05 | SANGAMO |
| 6 | | | 9 | 1 | 0 | 0 | 0 | 3-0002 | | 1 | BRACKET, MOUNTING, CAPACITOR | | | | | | | 115058-01 | SANGAMO |
| 7 | | | 9 | 0 | 1 | 0 | 0 | 2-0001 | | 2 | CAPACITOR 3600 uF, 25V, WITH LOW SCREW INSERT TERMINAL | | | | | | | 500-1945-01 | SANGAMO |
| 8 | | | 9 | 0 | 1 | 0 | 0 | 2-0002 | | 1 | CAPACITOR 6500 uF, 15V, WITH LOW SCREW INSERT TERMINAL | | | | | | | 500-1927-01 | SANGAMO |
| 9 | | | 9 | 0 | 1 | 0 | 0 | 2-0003 | | 1 | CAPACITOR 16000 uF, 75V, WITH LOW SCREW INSERT TERMINAL | | | | | | | 500-1978-01 | SANGAMO |
| 10 | | | 9 | 0 | 1 | 0 | 0 | 2-0004 | | 1 | CAPACITOR 22000 uF, 25V, WITH LOW SCREW INSERT TERMINAL | | | | | | | 500-1948-01 | SANGAMO |
| 11 | | | 9 | 0 | 1 | 0 | 0 | 2-0005 | | 1 | CAPACITOR 37000 uF, 15V, WITH LOW SCREW INSERT TERMINAL | | | | | | | 500-1930-01 | SANGAMO |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | 1 | 0 | 1 | 8 | 4 | 5-100 | D | 1 | ASSEMBLY, HEAT SINK | | X | | X | | X | | |
| 14 | | | | 1 | 0 | 1 | 8 | 45 | B | 1 | HEAT SINK POWER SUPPLY | | X | | X | | | | |
| 15 | | | | | | 1 | 0 | 1 | 845-099 | B | 1 | ANGLE | | X | | X | | | | |
| 16 | | | | | | 9 | - | M | S122076 | | 4 | INSERT, #4-40 x .112 LONG | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | 9 | 0 | 3 | 0 | 01-0001 | | 1 | RECTIFIER, BRIDGE | | | | | | | 45527-200/T | VARO, INC. |
| 19 | | | | | 9 | 0 | 3 | 0 | 02-0001 | | 2 | RECTIFIER, BRIDGE | | | | | | | 1N4436/T | VARO, INC. |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY · BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 15 OF 47

REV

| ITEM NO. | DIG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | - | J | A | N2N3715 | | 1 | TRANSISTOR, NPN | | | | | | | | |
| 2 | | | | 9 | 0 | 4 | 0 | 17-0001 | | 1 | TRANSISTOR, PNP | | | | | | | 2N4898 | MOTOROLA |
| 3 | | | | 9 | 0 | 4 | 0 | 18-0001 | | 2 | TRANSISTOR, NPN | | | | | | | 2N4910 | MOTOROLA |
| 4 | | | | 9 | - | C | K | 06BX473M | | 3 | CAPACITOR, .047 uF, 100V, 20% | | | | | | | | MIL-C-11015D |
| 5 | | | | 9 | - | C | K | 06BX222K | | 1 | CAPACITOR, .0022 uF | | | | | | | | MIL-C-11015D |
| 6 | | | | 9 | - | R | E | 65G-1R00 | | 1 | RESISTOR, 1 OHM, 10W, 1% | | | | | | | | MIL-R-18546 |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 9 | - | M | S | 77068-2 | | 4 | LUG, SOLDER | | | | | | | | |
| 9 | | | | 9 | 1 | 0 | 0 | 00-0001 | | 1 | INSULATOR, MICA (TO-3) | | | | | | | 495320 | RCA |
| 10 | | | | 9 | 1 | 0 | 0 | 00-0003 | | 3 | INSULATOR, MICA (TO-66) | | | | | | | DF31A | RCA |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 9 | - | M | S | 51959-5 | | 2 | SCREW, FL HD #2-56 X .38 LONG | | | | | | | | |
| 13 | | | | 9 | - | M | S | 24693-C28 | | 6 | SCREW, FL HD #6-32 x .50 LONG | | | | | | | | |
| 14 | | | | 9 | - | M | S | 51957-29 | | 6 | SCREW, PAN HD #6-32 x .44 LONG | | | | | | | | |
| 15 | | | | 9 | - | M | S | 51957-30 | | 2 | SCREW, PAN HD #6-32 x .50 LONG | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 9 | - | M | S | 15795-802 | | 2 | WASHER, FLAT #2 | | | | | | | | |
| 18 | | | | 9 | - | M | S | 15795-806 | | 8 | WASHER, FLAT #6 | | | | | | | | |
| 19 | | | | 9 | - | M | S | 35338-134 | | 2 | WASHER, SPRING-LOCK #2 | | | | | | | | |

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | 1 | 0 | 0 | 06-0001 | | 8 | WASHER, NYLON SHOULDER #6 | | | | | | | 495334-7 | RCA |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 9 | - | M | S | 35649-224 | | 2 | NUT, PLAIN #2-56 | | | | | | | | |
| 4 | | | | 9 | - | M | S | 21083C06 | | 14 | NUT, LOCKING #6-32 | | | | | | | | |
| 5 | | | | 9 | 2 | 2 | 0 | 00-0001 | | A/R | COMPOUND, THERMAL JOINT | | | | | | | TYPE 122 | WAKEFIELD |
| 6 | | | | 9 | - | S | N | 60WRMAP3 | | A/R | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | 1 | 0 | 1 | 8 | 1 | 4-101 | D | 1 | POWER SUPPLY PCB ASSEMBLY | | | | X | | | | |
| 10 | | | | 1 | 0 | 1 | 8 | 13 | C | 1 | MASTER DRAWING, POWER SUPPLY PCB | | | | X | | | | |
| 11 | | | | | 1 | 0 | 1 | 813-500 | A | REF | ARTWORK, MASTER | | | | X | | | | |
| 12 | | | | 9 | - | R | N | 60D2490F | | 1 | RESISTOR, 249 OHM, 1/4W, 1% | | | | | | | | MIL-R-22684B |
| 13 | | | | 9 | - | R | N | 60D1001F | | 2 | RESISTOR, 1K, 1/4W, 1% | | | | | | | | MIL-R-22684B |
| 14 | | | | 9 | - | R | N | 60D1871F | | 1 | RESISTOR, 1.87K, 1/4W, 1% | | | | | | | | MIL-R-22684B |
| 15 | | | | 9 | - | R | N | 60D4871F | | 1 | RESISTOR, 4.87K, 1/4W, 1% | | | | | | | | MIL-R-22684B |
| 16 | | | | 9 | - | R | N | 60D7151F | | 1 | RESISTOR, 7.15K, 1/4W, 1% | | | | | | | | MIL-R-22684B |
| 17 | | | | 9 | - | R | C | 07GF3R9J | | 1 | RESISTOR, 3.9 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 18 | | | | 9 | - | R | C | 07GF221J | | 1 | RESISTOR, 220 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 19 | | | | 9 | - | R | C | 07GF562J | | 1 | RESISTOR, 5.6K, 1/4W, 5% | | | | | | | | MIL-R-11 |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059
RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY · BUNKER RAMO | DOCUMENT NO. 10240C-300 | REV
SHEET 17 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C D E F G H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | - | R | C | 07GF273J | | 1 | RESISTOR, 27K, 1/4W, 5% | | | MIL-R-11 |
| 2 | | | | 9 | - | R | C | 20GF2R0J | | 1 | RESISTOR, 2 OHM, 1/2W, 5% | | | MIL-R-11 |
| 3 | | | | 9 | - | R | C | 20GF431J | | 1 | RESISTOR, 430 OHM, 1/2W, 5% | | | MIL-R-11 |
| 4 | | | | 9 | - | R | C | 20GF102J | | 2 | RESISTOR, 1K, 1/2W, 5% | | | MIL-R-11 |
| 5 | | | | 9 | - | R | W | 69VR12 | | 1 | RESISTOR, .12 OHM, 3W, 10% | | | MIL-R-26E |
| 6 | | | | 9 | - | R | W | 69V911 | | 1 | RESISTOR, 910 OHM, 3W, 10% | | | MIL-R-26E |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | 9 | - | C | K | 05BX471K | | 1 | CAPACITOR, 470 PF, 200V, 10% | | | MIL-C-11015D |
| 9 | | | | 9 | - | C | K | 06BX473M | | 2 | CAPACITOR, .047 uF, 100V, 20% | | | MIL-C-11015D |
| 10 | | | | 9 | - | C | S | R13E107KL | | 2 | CAPACITOR, 100 uF, 20V, 10% | | | MIL-C-39003 |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | 9 | - | J | A | N1N3022B | | 1 | DIODE, ZENER | | | |
| 13 | | | | 9 | - | J | A | N1N3611 | | 9 | DIODE | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | 9 | - | J | A | N2N2905 | | 1 | TRANSISTOR, PNP | | | |
| 16 | | | | 9 | 0 | 4 | 0 | 01-0001 | | 4 | TRANSISTOR, NPN | | 2N2102 | RAYTHEON |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | 9 | 0 | 5 | 0 | 71-2001 | | 1 | I C. VOLTAGE REGULATOR UA723 | | U5R7723312 | FAIRCHILD |
| 19 | | | | | | | | | | | | | | |

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | - | S | E | 12-X-C-01 | | 22 | TERMINAL | | | | | | | | MIL-T-55155/12- |
| 2 | | | | 9 | - | T | Y | PE PUR | | AR | COATING, CONFORMAL | | | | | | | | MIL-I-46058 |
| 3 | | | | 9 | - | T | Y | PE - S | | AR | WIRE, BUS, 24 AWG, SOLID | | | | | | | | QQ-W-343 |
| 4 | | | | 9 | 1 | 7 | 0 | 01-0001 | | AR | SLEEVING, TEFLON | | | | | | | TFT250/24 | ALPHA |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 9 | - | S | N | 60WRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 7 | | | | 1 | 0 | 1 | 8 | 14-320 | B | REF | SCHEMATIC, POWER SUPPLY | | | | X | | X | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | 9 | 2 | 2 | 0 | 0 | 5-0001 | | 1 | TAPE, FOAM ADHESIVE | | | | | | | 4516 3/4 WIDE | 3M CO. |
| 10 | | | 9 | 1 | 4 | 0 | 0 | 8-0001 | | 1 | CONNECTOR (20 PIN) | | | | | | | XAC20PF1000 | WINCHESTER |
| 11 | * | | | 9 | - | M | S | 8176-1 | | 1 | INSERT, MALE | | | | | | | | |
| 12 | * | | | 9 | - | M | S | 8196-1 | | 1 | JACKSCREW (FIXED) | | | | | | | | |
| 13 | * | | | 9 | - | M | S | 8196-2 | | 1 | JACKSOCKET (FIXED) | | | | | | | | |
| 14 | * | * | | 9 | 1 | 4 | 0 | 09-0001 | | REF | SHELL | | | | | | | XMRE20-1000 | WINCHESTER |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | * ITEMS 11, 12 AND 13 | | | ARE MIL-STD PARTS AND ARE MILITARY VERSIONS OF COMMERCIAL PARTS AND NEED | | | | | | | | |
| 18 | | | | | | | | TO BE SPECIFIED WHEN | | | ORDERING. | | | | | | | | |
| 19 | | | | | | | | ** ITEM 14 - REFERENCE | | | PART INCLUDED IN ITEM 10, XAC2 F1000 | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 19 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄ INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | M | S | 2 | 5036-3 | | 15 | LUG, CRIMP INSULATED | | | | | | | | |
| 2 | | | 9 | - | M | S | 2 | 5036-8 | | 8 | LUG, CRIMP INSULATED | | | | | | | | |
| 3 | | | 9 | - | M | S | 2 | 5036-45 | | 1 | LUG, CRIMP INSULATED | | | | | | | | |
| 4 | | | 9 | - | M | S | 1 | 7803-16-20 | | 16 | CONTACT, MALE | | | | | | | | |
| 5 | | | 9 | - | I | - | B | -4 | | AR | TAPE, LACING | | | | | | | | MIL-T-43435 |
| 6 | | | 9 | - | C | L | 1 | -250-BLACK | | AR | INSULATION, SLEEVING | | | | | | | | MIL-I-23053/5 |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | 9 | - | M | S | 5 | 1957-14 | | 4 | SCREW, PAN HEAD, #4-40 x .31 LG | | | | | | | | |
| 9 | | | 9 | - | M | S | 5 | 1957-15 | | 4 | SCREW, PAN HEAD, #4-40 x .38 LG | | | | | | | | |
| 10 | | | 9 | - | M | S | 5 | 1957-28 | | 6 | SCREW, PAN HEAD, #6-32 x .38 LG | | | | | | | | |
| 11 | | | 9 | - | M | S | 5 | 1957-29 | | 1 | SCREW, PAN HEAD, #6-32 x .44 LG | | | | | | | | |
| 12 | | | 9 | - | M | S | 5 | 1957-30 | | 2 | SCREW, PAN HEAD, #6-32 x .50 LG | | | | | | | | |
| 13 | | | 2 | - | M | S | 5 | 1957-45 | | 3 | SCREW, PAN HEAD, #8-32 x .50 LG | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | 9 | - | M | S | 2 | 4693-C3 | | 4 | SCREW, FLAT 100°, #4-40 x .31LG | | | | | | | | |
| 16 | | | 9 | - | M | S | 2 | 4693-C4 | | 6 | SCREW, FLAT 100°, #4-40 x .38LG | | | | | | | | |
| 17 | | | 9 | - | M | S | 2 | 4693-C25 | | 1 | SCREW, FLAT 100°, #6-32 x .31LG | | | | | | | | |
| 18 | | | 9 | - | M | S | 2 | 4693-C272 | | 2 | SCREW, FLAT 100°, #10-32 x .50LG | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

EQUIPMENT: TT-649/UY · BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 20 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | M | S | 1 | 5795-804 | | 8 | WASHER, FLAT #4 | | | | | | | | |
| 2 | | | 9 | - | N | A | S | 620C4 | | 2 | WASHER, FLAT, REDUCED O.D. #4 | | | | | | | | |
| 3 | | | 9 | - | M | S | 1 | 5795-806 | | 15 | WASHER, FLAT #6 | | | | | | | | |
| 4 | | | 9 | - | M | S | 1 | 5795-806 | | A/R | WASHER, FLAT #6 | | | | | | | | |
| 5 | | | 9 | - | M | S | 3 | 5338-136 | | 1 | WASHER, LOCK SPRING #6 | | | | | | | | |
| 6 | | | 9 | - | M | S | 1 | 5795-841 | | 3 | WASHER, FLAT #8 | | | | | | | | |
| 7 | | | 9 | - | M | S | 1 | 5795-842 | | 2 | WASHER, FLAT #10 | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | 9 | - | M | S | 2 | 1083C06 | | 9 | NUT, SELF-LOCKING #6-32 | | | | | | | | |
| 10 | | | 9 | - | N | A | S | 671C6 | | 1 | NUT, HEX, SMALL PATTERN #6-32 | | | | | | | | |
| 11 | | | 9 | - | M | S | 2 | 1083C3 | | 2 | NUT, SELF-LOCKING #10-32 | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | 9 | - | E | - | 2 | 0-BLACK | | 9 FT. | WIRE, ELEC-HOOK UP, 20 AWG | | | | | | | | MIL-W16878/4 |
| 14 | | | 9 | - | E | - | 2 | 0-RED | | 3.5 FT. | WIRE, ELEC-HOOK UP, 20 AWG | | | | | | | | MIL-W-16878/4 |
| 15 | | | 9 | - | E | - | 2 | 0-BLUE | | 15 IN. | WIRE, ELEC-HOOK UP, 20 AWG | | | | | | | | MIL-W-16878/4 |
| 16 | | | 9 | - | E | - | 2 | 2-RED | | 1 FT. | WIRE, ELEC-HOOK UP, 22 AWG | | | | | | | | MIL-W-16878/4 |
| 17 | | | 9 | - | E | - | 2 | 2-YELLOW | | 15 IN. | WIRE, ELEC-HOOK UP, 22 AWG | | | | | | | | MIL-W-16878/4 |
| 18 | | | 9 | - | E | - | 2 | 2-BLUE | | 2.5 FT. | WIRE, ELEC-HOOK UP, 22 AWG | | | | | | | | MIL-W-16878/4 |
| 19 | | | 9 | - | E | - | 2 | 2-VIOLET | | 8 IN. | WIRE, ELEC-HOOK UP, 22 AWG | | | | | | | | MIL-W-16878/4 |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059
RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 21 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | E | - | 2 2-GREY | | 13 FT. | WIRE, ELEC-HOOK UP, 22 AWG | | | | | | | | MIL-W-16878/4 |
| 2 | | | 9 | - | E | - | 2 2-WHT/RED | | 1.5 FT. | WIRE, ELEC-HOOK UP, 22 AWG | | | | | | | | MIL-W-16878/4 |
| 3 | | | 9 | - | E | - | 2 WHT/RED/ 2-ORG | | 1 FT. | WIRE, ELEC-HOOK UP, 22 AWG | | | | | | | | MIL-W-16878/4 |
| 4 | | | 9 | - | E | - | 2 WHT/RED/ 2-YEL | | 3 FT. | WIRE, ELEC-HOOK UP, 22 AWG | | | | | | | | MIL-W-16878/4 |
| 5 | | | 9 | - | E | - | 2 4-BLACK | | 13 IN. | WIRE, ELEC-HOOK UP, 24 AWG | | | | | | | | MIL-W-16878/4 |
| 6 | | | 9 | - | E | - | 2 4-GREEN | | 2.5 FT. | WIRE, ELEC-HOOK UP, 24 AWG | | | | | | | | MIL-W-16878/4 |
| 7 | | | 9 | - | E | - | 2 4-GREY | | 4 FT. | WIRE, ELEC-HOOK UP, 24 AWG | | | | | | | | MIL-W-16878/4 |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | 9 | - | T | Y | P E PUR | | AR | COATING, CONFORMAL | | | | | | | | MIL-I-46058 |
| 11 | | | 9 | - | G | R | A DE "C"-BLUE | | AR | RETAINING COMPOUND | | | | | | | | MIL-S-22473 |
| 12 | | | 9 | - | S | N | 6 OWRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 13 | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | |
| 16 | | | 1 | 0 | 1 | 8 | 5 1-861 | B | REF | WIRE LIST, HARNESS | | | X | | | | | |
| 17 | | | 1 | 0 | 1 | 8 | 5 1-320 | B | REF | INTERCONNECTION DIAGRAM P.S. | | | | X | | X | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 22 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 1 | 7 | 1 | 0 | -101 | E | 1 | MOTOR DRIVER, PCB ASSY | | X | | X | | | | |
| 2 | | | 1 | 0 | 1 | 7 | 0 | 1 | D | 1 | MASTER DWG, MOTOR DRIVER PCB | | | | X | | | | |
| 3 | | | | 1 | 0 | 1 | 7 | 01-500 | A | REF | ARTWORK, MASTER | | | | X | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | 9 | - | S | E | 1 | 2-X-C-01 | | 13 | TERMINAL, TEST POINT | | | | | | | | MIL-T-55155/12- |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | 9 | 0 | 4 | 0 | 0 | 1-0001 | | 5 | TRANSISTOR, NPN, SILICON | | | | | | | 2N2102 | RAYTHEON |
| 8 | | | 9 | 0 | 4 | 0 | 1 | 2-0001 | | 4 | TRANSISTOR, NPN, SILICON | | | | | | | 2N4233 | MOTOROLA |
| 9 | | | 9 | 0 | 4 | 0 | 1 | 0-0001 | | 1 | TRANSISTOR, PNP, SILICON | | | | | | | 2N4236 | MOTOROLA |
| 10 | | | 9 | - | J | A | N | 2N3792 | | 1 | TRANSISTOR, PNP, SILICON | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | 9 | 0 | 2 | 0 | 0 | 0-0001 | | 2 | DIODE, SILICON | | | | | | | 1N4721 | MOTOROLA |
| 13 | | | 9 | - | J | A | N | 1N3611 | | 4 | DIODE, SILICON | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | 9 | - | R | C | 0 | 7GF102J | | 1 | RESISTOR, 1K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 16 | | | 9 | - | R | C | 0 | 7GF223J | | 1 | RESISTOR, 22K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 17 | | | 9 | - | R | C | 0 | 7GF101J | | 1 | RESISTOR, 100 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 18 | | | 9 | - | R | C | 0 | 7GF471J | | 1 | RESISTOR, 470 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 19 | | | 9 | - | R | C | 0 | 7GF561J | | 4 | RESISTOR, 560 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY .BUNKER RAMO

DOCUMENT NO. 102400-300 REV
SHEET 23 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ←J— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | R | C | 3 | 2GF562J | | 1 | RESISTOR, 5.6K, 1W, 5% | | | | | | | | MIL-R-11 |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | 9 | 1 | 0 | 0 | 0 | 2-0001 | | 6 | PAD, TRANSISTOR (TO-5) | | | | | | | 7717-15N-WT | THERMALLOY |
| 4 | | | 9 | - | M | S | 1 | 5795-806 | | 10 | WASHER, FLAT #6 | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | 9 | - | M | S | 5 | 1957-28 | | 8 | SCREW, PAN HD #6-32 x .38 LG | | | | | | | | |
| 7 | | | 9 | - | M | S | 5 | 1957-29 | | 2 | SCREW, PAN HD #6-32 x .44 LG | | | | | | | | |
| 8 | | | 9 | - | M | S | 2 | 1083C06 | | 10 | NUT, LOCKING, HEX, #6-32 | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | 9 | - | T | Y | P | E PUR | | AR | CONFORMAL COATING | | | | | | | | MIL-I-46058 |
| 11 | | | 9 | - | S | N | 6 | CWRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | 1 | 0 | 1 | 7 | 1 | 0-320 | D | REF | SCHEMATIC, MOTOR DRIVER | | | | X | | X | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | 1 | 0 | 1 | 7 | 1 | 1 | -104 | K | 1 | ASSEMBLY, COMMON DRIVER PCB | | X | | X | | | | |
| 17 | | | 1 | 0 | 1 | 7 | 0 | 2 | D | 1 | MASTER DWG, COMMON DRIVER PCB | | | | X | | | | |
| 18 | | | | 1 | 0 | 1 | 7 | 02-500 | A | REF | ARTWORK, MASTER | | | | X | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

EQUIPMENT: TT-649/UY · BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 24 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | S | E | 1 | 2-X-C-01 | | 19 | TERMINAL, TEST POINT | | | | | | | | MIL-T- 55155/121 |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | 9 | 0 | 4 | 0 | 0 | 1-0001 | | 4 | TRANSISTOR, NPN | | | | | | | 2N2102 | RAYTHEON |
| 4 | | | 9 | 0 | 4 | 0 | 1 | 0-0001 | | 4 | TRANSISTOR, PNP | | | | | | | 2N4236 | MOTOROLA |
| 5 | | | 9 | 0 | 4 | 0 | 1 | 1-0001 | | 1 | TRANSISTOR, PNP | | | | | | | MJ4502 | MOTOROLA |
| 6 | | | 9 | - | J | A | N | 2N4948 | | 1 | TRANSISTOR, UJT | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | 9 | - | R | C | 0 | 7GF100J | | 1 | RESISTOR, 10 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 9 | | | 9 | - | R | C | 0 | 7GF390J | | 1 | RESISTOR, 39 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 10 | | | 9 | - | R | C | 0 | 7GF101J | | 4 | RESISTOR, 100 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 11 | | | 9 | - | R | C | 0 | 7GF121J | | 1 | RESISTOR, 120 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 12 | | | 9 | - | R | C | 0 | 7GF221J | | 1 | RESISTOR, 220 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 13 | | | 9 | - | R | C | 0 | 7GF471J | | 1 | RESISTOR, 470 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 14 | | | 9 | - | R | C | 0 | 7GF561J | | 1 | RESISTOR, 560 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 15 | | | 9 | - | R | C | 0 | 7GF102J | | 3 | RESISTOR, 1K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 16 | | | 9 | - | R | C | 0 | 7GF472J | | 5 | RESISTOR, 4.7K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 17 | | | 9 | - | R | C | 0 | 7GF123J | | 1 | RESISTOR, 12K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 18 | | | 9 | - | R | C | 0 | 7GF624J | | 1 | RESISTOR, 620K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 19 | | | 9 | - | R | L | R | 07C680G | | 1 | RESISTOR, 68 OHM, 1/4W, 2% | | | | | | | | MIL-R-22684B |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059
RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV
SHEET 25 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | R | L | R | 07C102G | | 2 | RESISTOR, 1K, 1/4W, 2% | | | | | | | | MIL-R-22684B |
| 2 | | | 9 | - | R | L | R | 07C272G | | 1 | RESISTOR, 2.7K, 1/4W, 2% | | | | | | | | MIL-R-22684B |
| 3 | | | 9 | 0 | 0 | 0 | 0 | 0-0001 | | 1 | RESISTOR, 470 OHM, 5W, 5% | | | | | | | 4610 SERIES 99 | OHMITE |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | 9 | - | C | K | 0 | 5BX103K | | 1 | CAPACITOR, CERAMIC, .01 uF, 100V, 10% | | | | | | | | MIL-C-11015 |
| 6 | | | 9 | - | C | S | 1 | 3BF105J | | 2 | CAPACITOR, 1 uF, 35V, 5% | | | | | | | | MIL-C-39003 |
| 7 | | | 9 | - | C | S | R | 13C336KL | | 1 | CAPACITOR, 33 uF, 10V, 10% | | | | | | | | MIL-C-39003 |
| 8 | | | 9 | - | C | S | R | 13D226KL | | 1 | CAPACITOR, 22 uF, 15V, 10% | | | | | | | | MIL-C-39003 |
| 9 | | | 9 | - | C | S | R | 13H474MP | | 1 | CAPACITOR, 47 uF, 75V, 10% | | | | | | | | MIL-C-39003 |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | 9 | - | J | A | N | 1N4148 | | 6 | DIODE | | | | | | | | |
| 12 | | | 9 | - | R | T | H | 42ES221J | | 1 | SENSISTOR, 220 OHM, 10% | | | | | | | TG 1/8 220 OHM | TEXAS INST. |
| 13 | | | 9 | 0 | 6 | 0 | 5 | 1-5001 | | 1 | INTEGRATED CIRCUIT | | | | | | | SN 5406J | TEXAS INST. |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | 9 | 0 | 5 | 0 | 1 | 2-5007 | | 1 | INTEGRATED CIRCUIT | | | | | | | SN 5426J | TEXAS INST. |
| 16 | | | 9 | 0 | 5 | 0 | 4 | 3-5002 | | 1 | INTEGRATED CIRCUIT | | | | | | | SN 5474J | TEXAS INST. |
| 17 | | | 9 | 0 | 5 | 0 | 0 | 8-5001 | | 2 | INTEGRATED CIRCUIT | | | | | | | DM 7820D | NATIONAL |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

EQUIPMENT: TT-649/UY . BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 26 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | 1 | 0 | 0 | 0 2-0001 | | 6 | PAD, TRANSISTOR (TO-5) | | | | | | | 7717-15N-WT | THERMALLOY |
| 2 | | | 9 | 1 | 0 | 0 | 0 2-0002 | | 1 | PAD, TRANSISTOR (TO-18) | | | | | | | 7717-16N-WT | THERMALLOY |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | 9 | - | M | S | 5 1957-29 | | 2 | SCREW, PAN HD #6-32 x .44 LG | | | | | | | | |
| 5 | | | 9 | - | M | S | 1 5795-806 | | 2 | WASHER, FLAT #6 | | | | | | | | |
| 6 | | | 9 | - | M | S | 2 1083C06 | | 2 | NUT, LOCKING, HEX, #6-32 | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | 9 | - | T | Y | P E"S" | | AR | WIRE, BUS 24 AWG | | | | | | | | QQ-W-343 |
| 9 | | | 9 | - | T | Y | P E PUR | | AR | CONFORMAL COATING | | | | | | | | MIL-I-46058 |
| 10 | | | | | | | | | | | | | | | | | | |
| 11 | | | 9 | - | S | N | 6 OWRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 12 | | | 1 | 0 | 1 | 7 | 1 1-320 | F | REF | SCHEMATIC, COMMON DRIVER | | | | X | | X | | |
| 13 | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | 1 | 0 | 1 | 7 | 1 | 2 -104 | G | 10 | FINGER DRIVER PCB ASSEMBLY | | X | | X | | | | |
| 16 | | | 1 | 0 | 1 | 7 | 0 3 | D | 1 | MASTER DWG, FINGER DRIVER | | | | X | | | | |
| 17 | | | | 1 | 0 | 1 | 7 03-500 | A | REF | ARTWORK, MASTER | | | | X | | | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY . BUNKER RAMO

DOCUMENT NO. 102400-300 REV
SHEET 27 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ◁— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | 0 | 4 | 0 | 1 4-0001 | | 1 | TRANSISTOR, NPN, SILICON | | | | | | | 2N4239 | MOTOROLA |
| 2 | | | 9 | 0 | 4 | 0 | 0 1-0001 | | 40 | TRANSISTOR, NPN, SILICON | | | | | | | 2N2102 | RAYTHEON |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | 9 | - | R | C | 0 7GF390J | | 1 | RESISTOR, 39 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 5 | | | 9 | - | R | C | 0 7GF820J | | 40 | RESISTOR, 82 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 6 | | | 9 | - | R | C | 0 7GF561J | | 1 | RESISTOR, 560 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 7 | | | 9 | - | R | C | 0 7GF102J | | 1 | RESISTOR, 1K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 8 | | | 9 | 0 | 5 | 0 | 4 7-5001 | | 5 | INTEGRATED CIRCUIT | | | | | | | SN54164J | TEXAS INST. |
| 9 | | | 9 | - | C | K | 0 5BX103K | | 1 | CAPACITOR, .01 uF, 100V, 10% | | | | | | | | MIL-C-11015 |
| 10 | | | 9 | - | C | S | R 13C475KL | | 1 | CAPACITOR, 4.7 uF, 10V | | | | | | | | MIL-C-39003 |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | 9 | - | T | Y | P E S | | AR | WIRE, BUS, #24 AWG, SOLID | | | | | | | | QQ-W-343 |
| 13 | | | 9 | - | 2 | 4 | A WG - CLEAR | | AR | SLEEVING, TEFLON | | | | | | | | MIL-I-221296 |
| 14 | | | 9 | - | T | Y | P E PUR | | AR | CONFORMAL COATING | | | | | | | | MIL-I-46058 |
| 15 | | | 9 | - | S | N | 6 OWRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 16 | | | | | | | | | | | | | | | | | | |
| 17 | | | 1 | 0 | 1 | 7 | 1 2-320 | C | REF | SCHEMATIC, FINGER DRIVER | | | | X | | X | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |

EQUIPMENT: TT-649/UY . BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 28 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 2 | 4 | 1 | 0 | -103 | N/C | 1 | LOGIC BOARD ASSEMBLY | | | | X | | | | |
| 2 | | | 1 | 0 | 1 | 7 | 1 | 7-101 | F | 1 | MASTER DWG LOGIC BOARD | | X | | X | | | | |
| 3 | | | | 1 | 0 | 1 | 7 | 17 | F | 1 | SHEET, EPOXY GLASS | | X | | X | | | | |
| 4 | | | | 9 | 1 | 8 | 0 | 00-0001 | | 1824 | CONTACT ASSEMBLY | | | | | | | LSG-1FG1-1 | AUGAT |
| 5 | | | | 9 | - | M | S | 21209C0210 | | 2 | INSERT #2-56 x .086 LG, LOCKING | | | | | | | | |
| 6 | | | | 9 | - | S | N | 60WRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 7 | | | 1 | 0 | 2 | 1 | 7 | 4 | A | 1 | ROM RETAINER | | | X | | | | | |
| 8 | | | 9 | 2 | 2 | 0 | 0 | 5- 0003 | | | TAPE, FOAM, ADHESIVE | | | | | | | 4532 ½ WIDE | 3M CO. |
| 9 | | | 1 | 0 | 1 | 7 | 8 | 1-101 | E | 3 | MOS INTERFACE MODULE ASSEMBLY | | X | | X | | | | |
| 10 | | | | 9 | 1 | 9 | 0 | 00-0001 | | 1 | MODULE, ADAPTER | | | | | | | 8136-29G1 | AUGAT, INC. |
| 11 | | | | 9 | - | R | C | 07GF222J | | 7 | RESISTOR, 2.2K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 9 | - | TYPE | | "C" | | A/R | COMPOUND, POTTING | | | | | | | | MIL-I-16923 |
| 14 | | | | 9 | - | S | N | 60WRMAP3 | | A/R | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | 1 | 0 | 1 | 7 | 8 | 2-101 | D | 1 | FILTER MODULE ASSEMBLY | | X | | X | | | | |
| 17 | | | | 9 | 1 | 9 | 0 | 00-0001 | | 1 | MODULE, ADAPTER | | | | | | | 8136-29G1 | AUGAT, INC. |
| 18 | | | | 9 | 0 | 1 | 0 | 01-0005 | | 2 | CAPACITOR, 200 pF | | | | | | | CD7FC201G03 | CDE |
| 19 | | | | 9 | - | C | S | R13E225KL | | 2 | CAPACITOR, @.2 uF, 20V | | | | | | | | MIL-C-39003 |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059
RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO | DOCUMENT NO. 102400-300 SHEET 29 OF 47 | REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INTENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | - | T | Y | PE "C" | | AR | COMPOUND, POTTING | | | | | | | | MIL-I-16923 |
| 2 | | | | 9 | - | S | N | 60WRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | | 1 | 0 | 1 | 7 | 8 | 3-101 | E | 1 | CLOCK OSC. MODULE ASSY. | | X | | X | | | | |
| 5 | | | | 9 | 1 | 9 | 0 | 00-0002 | | 1 | MODULE, ADAPTER | | | | | | | 8136-30G3 | AUGAT, INC. |
| 6 | | | | 9 | - | R | C | 07GF222J | | 2 | RESISTOR, 2.2K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 7 | | | | 9 | 0 | 1 | 0 | 01-0006 | | 2 | CAPACITOR, 10 pF | | | | | | | CD6CD100K03 | CDE |
| 8 | | | | 9 | - | C | R | 64/U-HC18/U | | 1 | CRYSTAL, 4.6 MHz | | | | | | | | MIL-C-3098 |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 9 | - | TYPE | | "C" | | A/R | COMPOUND, POTTING | | | | | | | | MIL-I-16923 |
| 11 | | | | 9 | - | S | N | 60WRMAP3 | | A/R | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | 1 | 0 | 1 | 7 | 8 | 4-101 | D | 1 | COMPONENT MODULE ASSEMBLY | | | | X | | | | |
| 14 | | | | 9 | 1 | 9 | 0 | 00-0001 | | 1 | MODULE, ADAPTER | | | | | | | 8136-29G1 | AUGAT, INC. |
| 15 | | | | 9 | - | J | A | N1N4148 | | 1 | DIODE, SILICON | | | | | | | | |
| 16 | | | | 9 | - | R | C | 07GF222J | | 3 | RESISTOR, 2.2K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 17 | | | | 9 | - | R | C | 07GF104J | | 1 | RESISTOR, 100K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 18 | | | | 9 | - | C | S | R13B685KL | | 1 | CAPACITOR, 6.8 uF, 6V | | | | | | | | MIL-E-39003 |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED BY: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY · BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 30 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG L.L | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | - | T | Y | PE "C" | | AR | COMPOUND, POTTING | | | | | | | | MIL-I-16923 |
| 2 | | | | 9 | - | S | N | 60WRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | | 1 | 0 | 1 | 8 | 2 | 7-100 | C | 1 | VOLTAGE DETECTION MOD ASSY | | X | X | | | | | |
| 5 | | | | 9 | 1 | 9 | 0 | 00-0001 | | 1 | MODULE, ADAPTER | | | | | | | 8136-29G1 | AUGAT, INC. |
| 6 | | | | 9 | - | R | C | 07GF202J | | 3 | RESISTOR, 2K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 7 | | | | 9 | - | R | C | 07GF103J | | 1 | RESISTOR, 10K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 8 | | | | 9 | - | R | C | 07GF682J | | 1 | RESISTOR, 6.8K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 9 | | | | 9 | - | R | C | 07GF363J | | 1 | RESISTOR, 36K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 9 | - | TYPE | | "C" | | A/R | COMPOUND, POTTING | | | | | | | | MIL-I-16923 |
| 12 | | | | 9 | - | S | N | 60WRMAP3 | | A/R | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | 1 | 0 | 1 | 8 | 2 | 8-100 | E | 1 | VOLTAGE DETECTION MOD II ASSY | | X | X | | | | | |
| 15 | | | | 9 | 1 | 9 | 0 | 00-0001 | | 1 | MODULE, ADAPTER | | | | | | | 8136-2901 | AUGAT, INC. |
| 16 | | | | 9 | - | R | C | 07GF512J | | 1 | RESISTOR, 5.1K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 17 | | | | 9 | - | R | C | 07GF123J | | 1 | RESISTOR, 12K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 18 | | | | 9 | - | R | C | 07GF222J | | 1 | RESISTOR, 2.2K, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 19 | | | | 9 | - | J | A | N1N4148 | | 1 | DIODE, SILICON | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY · BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 31 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | 0 | 1 | 0 | 01-0008 | | 2 | CAPACITOR, MICA 120 pF | | | | | | | CD6FC121G03 | CDE |
| 2 | | | | 9 | - | TYPE | | "C" | | A/R | COMPOUND, POTTING | | | | | | | | MIL-I-16923 |
| 3 | | | | 9 | - | S | N | 60WRMAP3 | | A/R | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | 1 | 0 | 1 | 8 | 8 | 2-101 | D | 1 | MODULE REFERENCE ASSEMBLY | | X | | X | | | | |
| 6 | | | | 9 | 1 | 9 | 0 | 00-0001 | | 1 | MODULE, ADAPTER | | | | | | | 8136-29G1 | AUGAT, INC. |
| 7 | | | | 9 | - | R | C | 07GF820J | | 1 | RESISTOR, 82 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 8 | | | | 9 | - | R | C | 07GF101J | | 1 | RESISTOR, 100 OHM, 1/4W, 5% | | | | | | | | MIL-R-11 |
| 9 | | | | 9 | - | TYPE | | "S" | | A/R | WIRE, #24 AWG, SOLID TINNED | | | | | | | | QQ-S-343 |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 9 | - | TYPE | | "C" | | A/R | COMPOUND, POTTING | | | | | | | | MIL-I-16923 |
| 12 | | | | 9 | - | S | N | 60WRMAP3 | | A/R | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | 9 | 0 | 5 | 0 | 1 | 2-5001 | | 19 | INTEGRATED CIRCUIT | | | | | | | SN5400J | TEXAS INST. |
| 15 | | | 9 | 0 | 5 | 0 | 3 | 3-5001 | | 13 | INTEGRATED CIRCUIT | | | | | | | SN5402J | TEXAS INST. |
| 16 | | | 9 | 0 | 5 | 0 | 1 | 2-5002 | | 9 | INTEGRATED CIRCUIT | | | | | | | SN5404J | TEXAS INST. |
| 17 | | | 9 | 0 | 5 | 0 | 3 | 6-5001 | | 1 | INTEGRATED CIRCUIT | | | | | | | SN54L04J | TEXAS INST. |
| 18 | | | 9 | 0 | 5 | 0 | 3 | 8-5001 | | 2 | INTEGRATED CIRCUIT | | | | | | | SN5408J | TEXAS INST. |
| 19 | | | 9 | 0 | 5 | 0 | 1 | 2-5003 | | 8 | INTEGRATED CIRCUIT | | | | | | | SN5410J | TEXAS INST. |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102490-300 REV

SHEET 32 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | 0 | 5 | 0 | 1 2-5004 | | 3 | INTEGRATED CIRCUIT | | | | | | | SN5420J | TEXAS INST. |
| 2 | | | 9 | 0 | 5 | 0 | 1 2-5008 | | 1 | INTEGRATED CIRCUIT | | | | | | | SN54L20J | TEXAS INST. |
| 3 | | | 9 | 0 | 5 | 0 | 1 2-5007 | | 3 | INTEGRATED CIRCUIT | | | | | | | SN5426J | TEXAS INST. |
| 4 | | | 9 | 0 | 5 | 0 | 4 2-5001 | | 4 | INTEGRATED CIRCUIT | | | | | | | SN5440J | TEXAS INST. |
| 5 | | | 9 | 0 | 5 | 0 | 4 3-5001 | | 9 | INTEGRATED CIRCUIT | | | | | | | SN5473J | TEXAS INST. |
| 6 | | | 9 | 0 | 5 | 0 | 4 3-5002 | | 5 | INTEGRATED CIRCUIT | | | | | | | SN5474J | TEXAS INST. |
| 7 | | | 9 | 0 | 5 | 0 | 4 5-5001 | | 7 | INTEGRATED CIRCUIT | | | | | | | SN5493J | TEXAS INST. |
| 8 | | | 9 | 0 | 5 | 0 | 4 6-5001 | | 1 | INTEGRATED CIRCUIT | | | | | | | SN5496J | TEXAS INST. |
| 9 | | | 9 | 0 | 5 | 0 | 5 0-5001 | | 1 | INTEGRATED CIRCUIT | | | | | | | SN5442J | TEXAS INST. |
| 10 | | | 9 | 0 | 5 | 0 | 3 0-C001 | | 1 | INTEGRATED CIRCUIT, MOS-ROM | | | | | | | TMS-2403 | TEXAS INST. |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | 9 | 0 | 5 | 0 | 1 0-0001 | | 4 | INTEGRATED CIRCUIT, MOS | | | | | | | SS-6-8212 | GENERAL INST. |
| 13 | | | 9 | 0 | 5 | 0 | 1 1-0001 | | 4 | INTEGRATED CIRCUIT, MOS | | | | | | | SL-6-2064 | GENERAL INST. |
| 14 | | | 9 | 0 | 5 | 0 | 0 8-5001 | | 4 | INTEGRATED CIRCUIT | | | | | | | DM7820D | NATIONAL |
| 15 | | | 9 | 0 | 5 | 0 | 0 9-5001 | | 3 | INTEGRATED CIRCUIT | | | | | | | DM7830D | NATIONAL |
| 16 | | | | | | | | | | | | | | | | | | |
| 17 | | | 9 | - | M | S | 5 1957-1 | | 2 | SCREW, PAN HD #2-56 x .12 LG | | | | | | | | |
| 18 | | | 9 | - | U | L | 1 422-9 | | 500 FT. | WIRE, W/W #30 AWG, WHITE | | | | | | | UL #1422-9 | UNDERWRITERS LAB |
| 19 | | | | | | | | | | | | | | | | | | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY . BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 33 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 | 0 | 2 | 4 | 1 | 0-320 | N/C | REF | LOGIC DIAGRAM | | | | X | | | | |
| 2 | | | 1 | 0 | 2 | 4 | 1 | 0-860 | N/C | REF | LOGIC WIRE LIST | | | X | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | 1 | 0 | 2 | 4 | 1 | 1 | -100 | D | 1 | ASSEMBLY, PRINT SYSTEM | | X | | X | | X | | |
| 5 | | | 1 | 0 | 1 | 7 | 0 | 9-101 | G | 1 | ASSEMBLY, MOTHER BOARD | | X | | X | | | | |
| 6 | | | | 1 | 0 | 1 | 7 | 00-003 | D | 1 | MASTER DWG MOTHER BOARD | | | | X | | | | |
| 7 | | | | | 9 | - | M | S122076 | | 5 | INSERT, #4-40 x .112 LONG | | | | | | | | |
| 8 | | | | | 1 | 0 | 1 | 700-500 | A | 1 | ARTWORK, MASTER | | | | X | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 1 | 0 | 2 | 1 | 76 | NC | 2 | SPACER, CONNECTOR | | X | | X | | | | |
| 11 | | | | | 1 | 0 | 2 | 176-099 | NC | 1 | SPACER | | X | | X | | | | |
| 12 | | | | | 9 | - | M | S122076 | | 13 | INSERT, #4-40 x .112 LONG | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 9 | - | S | E | 12-X-C-09 | | 13 | TERMINAL, TEST POINT | | | | | | | | MIL-T-55155/12 |
| 15 | | | | 9 | 1 | 4 | 0 | 06-0001 | | 13 | CONNECTOR | | | | | | | HW25C0113 | WINCHESTER |
| 16 | | | | 9 | 1 | 4 | 0 | 05-0002 | | 12 | KEY, POLARIZATION, NYON | | | | | | | 109-8670 | WINCHESTER |
| 17 | | | | 9 | 2 | 9 | 0 | 06-0002 | | 6 | WASHER, NYLON | | | | | | | NW4-2816 | WECKESSER |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY . BUNKER RAMO | DOCUMENT NO. 102400-300 | SHEET 34 OF 47 | REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | - | M | S 51957-15 | | 5 | SCREW, PAN HD, #4-40 x .38 LG | | | | | | | | |
| 2 | | | | 9 | - | M | S 51957-16 | | 26 | SCREW, PAN HD, #4-40 x .44 LG | | | | | | | | |
| 3 | | | | 9 | - | M | S 35338-135 | | 31 | WASHER, LOCK-SPRING #4 | | | | | | | | |
| 4 | | | | 9 | - | N | A S620C4L | | 31 | WASHER, FLAT #4 | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | 9 | 2 | 2 | 0 04-0001 | | AR | CEMENT, CONTACT | | | | | | | NO. 105 | U. S. PLYWOOD |
| 7 | | | | 9 | - | S | N 60WRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | 1 | 0 | 1 | 7 | 2 2-100 | M | 1 | ASSEMBLY, PRINT HEAD BOARD | | X | | X | | | | |
| 11 | | | | 1 | 0 | 1 | 8 08 | G | 1 | PRINT HEAD BOARD, MACH DET. | | X | | X | | | | |
| 12 | | | | | 1 | 0 | 1 719 | H | 1 | MASTER DRAWING CIRCUITRY ROUTE | | | | X | | | | |
| 13 | | | | | | 1 | 0 1719-500 | A | REF | ARTWORK, MASTER | | | | X | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | 1 | 0 | 1 | 7 21 | E | 400 | SPRING, CONTACT, HEAD BOARD | | X | | X | | | | |
| 16 | | | | 1 | 0 | 1 | 8 29 | C | 1 | RETAINER, CONTACT | | X | | X | | | | |
| 17 | | | | 1 | 0 | 1 | 8 53 | C | 1 | CONTACT SPRING RETAIN STRIP | | X | | X | | | | |
| 18 | | | | 1 | 0 | 2 | 1 69 | NC | 1 | PRESSURE PAD | | X | | X | | | | |
| 19 | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO 102400-300 REV

SHEET 35 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | 1 | 8 | 0 | 01-0001 | | 400 | PIN, WIRE WRAP | | | | | | | 8128-17P2 | AUGAT, INC. |
| 2 | | | | 9 | - | M | S | 171464 | | 2 | PIN, ROLL .078 DIA x .38 LG | | | | | | | | |
| 3 | | | | 9 | - | M | S | 122076 | | 4 | INSERT, #4-40 x .112 LONG | | | | | | | | |
| 4 | | | | 9 | - | M | I | L-P-55617 | | AR | PLASTIC SHEET | | | | | | | TYPE GEE | MIL-P-55617 |
| 5 | | | | 9 | - | M | I | L-7798 | | AR | TAPE, BLACK, ELEC. .007 | | | | | | | | MIL-I-7798 |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 9 | - | M | 1 | L-S-8660 | | AR | GREASE, SILICON | | | | | | | | MIL-S-8660 |
| 8 | | | | 9 | - | T | Y | PE PUR | | AR | CONFORMAL COATING | | | | | | | | MIL-I-46058 |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | 1 | 0 | 1 | 7 | 3 | 9-003 | J | 1 | CARD GUIDE | | X | | X | | | | |
| 12 | | | | 9 | - | M | S | 122196 | | 5 | INSERT, #4-40 x .28 LONG | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | 1 | 0 | 2 | 4 | 1 | 2-100 | E | 1 | ASSY, BRACKET, ALARM | | X | X | | | X | | |
| 15 | | | | 1 | 0 | 1 | 8 | 17 | D | 1 | BRACKET, ALARM | | X | X | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | 2 | | | | | | | | | |
| 18 | | | | | | | | | | 1 | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 36 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 9 | - | M | S2 | 7717-23 | | 2 | SWITCH, TOGGLE (DPDT) | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | MIL-R-5757/13 |
| 3 | | | | 9 | - | M | S | 15795-802 | | 2 | WASHER, FLAT #2 | | | | | | | | |
| 4 | | | | 9 | - | M | S | 15795-804 | | 2 | WASHER, FLAT #4 | | | | | | | | |
| 5 | | | | 9 | - | M | S | 35338-134 | | 2 | WASHER, SPRING LOCK #2 | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 9 | - | N | A | S671C2 | | 2 | NUT, PLAIN, HEX #2-56 | | | | | | | | |
| 8 | | | | 9 | - | M | S | 21083C04 | | 2 | NUT, LOCKING, HEX #4-40 | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 9 | - | E | - | 24-WHITE | | 15 FT. | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 11 | | | | 9 | - | E | - | 24-BLACK | | 3 FT | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 12 | | | | 9 | - | E | - | WHT/RED/ 24-YEL | | 3 FT. | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 13 | | | | 9 | - | E | - | WHT/RED/ 24-GRN | | 1.5 FT. | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 9 | - | C | L | 1-250-BLACK | | AR | INSULATION, SLEEVING | | | | | | | | MIL-I-23053/5 |
| 16 | | | | 9 | - | 1 | - | B-4 | | AR | TAPE, BLACK LACING | | | | | | | | MIL-T-43435 |
| 17 | | | | 9 | - | G | R | ADE "C"-BLUE | | AR | RETAINING COMPOUND | | | | | | | LIQUID COLOR CODE: BLUE | MIL-S-22473 |
| 18 | | | | 1 | - | S | N | 60WRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |

CONTRACT NO. F30602-70-C-0031 CODE IDENT 19059

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY · BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 37 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 ← INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D 1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | 1 | 0 | 0 | 0 7-0003 | | 4 | CLAMP, CABLE NYLON | | | | | | | TYPE 3/16-4 WC | WECKESSER |
| 2 | | | 9 | 1 | 0 | 0 | 0 8-0001 | | 4 | WASHER, CLAMP | | | | | | | D4-140 | WECKESSER |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | 9 | - | M | S | 5 1957-14 | | 1 | SCREW, PAN HEAD, #4-40 x .31 LG | | | | | | | | |
| 5 | | | 9 | - | M | S | 5 1957-16 | | 4 | SCREW, PAN HEAD, #4-40 x .44 LG | | | | | | | | |
| 6 | | | 9 | - | M | S | 2 4693-C30 | | 2 | SCREW, FLAT HD #6-32 x .75 LG | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | 9 | - | M | S | 1 5795-804 | | 1 | WASHER, FLAT #4 | | | | | | | | |
| 10 | | | 9 | - | M | S | 1 5795-806 | | 2 | WASHER, FLAT #6 | | | | | | | | |
| 11 | | | 9 | - | M | S | 3 5338-135 | | 5 | WASHER, SPRING LOCK #4 | | | | | | | | |
| 12 | | | 9 | - | M | S | 2 1083-C06 | | 2 | NUT, LOCKING HEX #6-32 | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | 9 | - | U | L | 1 422-9 | | 450 FT. | WIRE, W/W #30 AWG, WHITE | | | | | | | UL #1422-9 | UNDERWRITERS LAB |
| 16 | | | 9 | - | S | N | 6 OWRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 17 | | | 1 | 0 | 1 | 8 | 0 4-860 | D | REF | WIRING ASSY INSTRUCTIONS | | | | X | | X | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |

EQUIPMENT: TT-649/UY . BUNKER RAMO . DOCUMENT NO. 102400-300 REV
SHEET 38 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◁— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 1 | 8 | 3 | 3 | -100 | | 1 | ASSEMBLY, INTERFACE HARNESS | | | X | | X | X | | |
| 2 | | | 9 | 1 | 4 | 0 | 0 | 2-0002 | | 2 | PLUG, INTERFACE | | | | | | | 1P14-1 | AUGAT, INC. |
| 3 | | | 9 | - | M | S | 3 | 120F20-41P | | 1 | CONNECTOR | | | | | | | | |
| 4 | | | 9 | - | M | S | 2 | 5036-45 | | 2 | LUG, INSULATED CRIMP | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | 9 | - | E | - | 2 | 4-WHITE | | 14 IN. | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 8 | | | 9 | - | E | - | 2 | WHT/RED/ 4-GRN | | 1 FT. | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 9 | | | 9 | - | E | - | 2 | 6-WHITE | | 22 FT. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |
| 10 | | | 9 | - | E | - | 2 | 6-BLACK | | 2 FT. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | 9 | - | C | L | 1 | -188-BLACK | | 10 IN. | SLEEVING, INSULATION | | | | | | | | MIL-I-23053/5 |
| 14 | | | 9 | 2 | 2 | 0 | 0 | 5-0002 | | 2.5 IN. | TAPE, FOAM, ADHESIVE | | | | | | | 4516 1/2 WIDE | 3M CO. |
| 15 | | | 9 | - | I | - | B | -4 | | A/R | TAPE, LACING | | | | | | | | MIL-T-43435 |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | 1 | 0 | 2 | 4 | 0 | 4-320 | N/C | REF | SCHEMATIC, INTERCONNECTION | | | X | | X | X | | |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 39 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 1 | 8 | 3 | 4 | -100 | C | 1 | ASSEMBLY, INTERCONNECTION HARNESS | | | X | | | | | |
| 2 | | | 1 | 0 | 1 | 7 | 0 | 6 | D | 1 | MASTER DWG, CONNECTOR PCB | | | | X | | | | |
| 3 | | | | 1 | 0 | 1 | 7 | 06-500 | A | REF | ARTWORK, MASTER | | | | X | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | 1 | 0 | 2 | 1 | 8 | 9 | NC | 1 | FILTER, RADIO INTERFERENCE | | X | X | | | X | | |
| 6 | | | | 1 | 0 | 2 | 1 | 89-600 | NC | REF | RFI SPECIFICATION | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | 9 | | M | S | 3 | 100E22-2P | | 1 | CONNECTOR | | | | | | | | |
| 9 | | | 9 | 1 | 4 | 0 | 0 | 2-0002 | | 4 | PLUG, INTERFACE | | | | | | | 1P14-1 | AUGAT, INC. |
| 10 | | | 9 | 1 | 0 | 0 | 0 | 7-0002 | | 1 | CLAMP, CABLE | | | | | | | TYPE 3/8-4 | WECKESSER |
| 11 | | | 9 | 1 | 0 | 0 | 0 | 8-0001 | | 1 | WASHER, CLAMP | | | | | | | D4-140 | WECKESSER |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | 9 | - | 1 | 0 | T | B-28 | | 1 | TERMINAL STRIP | | | | | | | | MIL-T-16784 |
| 14 | | | 9 | - | M | S | 2 | 5036-45 | | 35 | LUG, CRIMP, INSULATED | | | | | | | | MIL-T-7928 |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | 9 | - | M | S | 5 | 1957-28 | | 1 | SCREW, PAN HD #6-32 x .38 LG | | | | | | | | |
| 17 | | | 9 | - | M | S | 1 | 5795-806 | | 1 | WASHER, FLAT #6 | | | | | | | | |
| 18 | | | 9 | - | M | S | 2 | 1083C06 | | 1 | NUT, LOCKING HEX #6-32 | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 40 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◁— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | 1 | 4 | 0 | 0 | 7-0001 | | 1 | CONNECTOR (20 PIN) | | | | | | | XAC20SM2000 | WINCHESTER |
| 2 | * | | | 9 | - | M | S | 18177-1 | | 1 | INSERT, FEMALE | | | | | | | | WINCHESTER |
| 3 | * | | | 9 | - | M | S | 18195-1 | | 1 | JACKSCREW, SHORT TURNABLE | | | | | | | | WINCHESTER |
| 4 | * | | | 9 | - | M | S | 18195-2 | | 1 | JACKSCREW, SHORT TURNABLE | | | | | | | | WINCHESTER |
| 5 | * | * | | 9 | 1 | 4 | 0 | 09-0002 | | REF | SHELL | | | | | | | XMRE20-2000 | WINCHESTER |
| 6 | * | * | * | 9 | - | M | S | 17804-16-16 | | 10 | CONTACT, FEMALE #16 | | | | | | | | |
| 7 | * | * | * | 9 | - | M | S | 17804-16-20 | | 6 | CONTACT, FEMALE #20 | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | *Items 2, 3 and 4 are MIL-STD Parts and are Military versions of commercial parts and need to be specified when ordering. | | | | | | | | | | |
| 10 | | | | | | | | **Item 5, reference part included in item 1, XAC20SM2000 | | | | | | | | | | | |
| 11 | | | | | | | | ***Items 6 and 7, contacts are ordered separately. | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | 9 | - | E | - | 2 | 6-BLACK | | 10 FT. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |
| 15 | | | 9 | - | E | - | 2 | 6-RED | | 14 IN. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |
| 16 | | | 9 | - | E | - | 2 | 6-WHITE | | 3.5 FT. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |
| 17 | | | 9 | - | E | - | 2 | 6-VIOLET | | 2.5 FT. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |
| 18 | | | 9 | - | E | - | 2 | 6-WHITE/RED | | 14 IN. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |
| 19 | | | 9 | - | E | - | 2 | WHT/RED/ 6-ORG | | 2.5 FT. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 41 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | E | - | 2 | 6-WHT/RED/YEL | | 7 FT. | WIRE, ELEC-HOOK UP #26 AWG | | | | | | | | MIL-W-16878/4 |
| 2 | | | 9 | - | E | - | 2 | 4-BLACK | | 3 FT. | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 3 | | | 9 | - | E | - | 2 | 4-RED | | 8 FT. | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 4 | | | 9 | - | E | - | 2 | 4-WHITE | | 4 FT. | WIRE, ELEC-HOOK UP #24 AWG | | | | | | | | MIL-W-16878/4 |
| 5 | | | 9 | - | E | - | 2 | 2-BLACK | | 13 FT. | WIRE, ELEC-HOOK UP #22 AWG | | | | | | | | MIL-W-16878/4 |
| 6 | | | 9 | - | E | - | 2 | 2-RED | | 7 FT. | WIRE, ELEC-HOOK UP #22 AWG | | | | | | | | MIL-W-16878/4 |
| 7 | | | 9 | - | E | - | 2 | 2-GREY | | 6 FT. | WIRE, ELEC-HOOK UP #22 AWG | | | | | | | | MIL-W-16878/4 |
| 8 | | | 9 | - | E | - | 2 | 2-WHT/RED | | 2 FT. | WIRE, ELEC-HOOK UP #22 AWG | | | | | | | | MIL-W-16878/4 |
| 9 | | | 9 | - | E | - | 2 | 2-WHT/RED/YEL | | 3 FT. | WIRE, ELEC-HOOK UP #22 AWG | | | | | | | | MIL-W-16878/4 |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | 9 | - | 1/3 | 2 | I. | D. | | 2 FT. | BRAID, WOVEN TUBULAR | | | | | | | 1/32 I.D. | QQ-B-575 |
| 13 | | | 9 | - | 11 | /64 | I. | D. | | 2 FT. | BRAID, WOVEN TUBULAR | | | | | | | 11/64 I.D. | QQ-B-575 |
| 14 | | | 9 | - | 1/ | 8 | I. | D. | | 4 FT. | BRAID, WOVEN TUBULAR | | | | | | | 1/8 I.D. | QQ-B-575 |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | 9 | - | T | Y | P | E PUR | | AR | CONFORMAL COATING | | | | | | | | MIL-I-46058 |
| 18 | | | 9 | - | I | - | B | -4 | | AR | TAPE, LACING | | | | | | | | MIL-T-43435 |
| 19 | | | 9 | - | C | L | 1 | -250-BLACK | | 2 FT. | INSULATION, SLEEVING | | | | | | | | MIL-I-23053/5 |

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 SHEET 42 OF 47 REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | - | C | L | 1 | -187-BLACK | | 4 FT. | INSULATION, SLEEVING | | | | | | | | MIL-I-23053/5 |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | 9 | - | S | N | 6 | OWRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | QQ-S-571 |
| 4 | | | 1 | 0 | 2 | 4 | 0 | 4-320 | N/C | REF | SCHEMATIC, INTERCONNECTION | | | X | | X | X | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | 9 | 2 | 6 | 0 | 0 | 1 | -0001 | | 4 | BEARING, PRECISION BALL | | | | | | | SSRI-6632LL-ABEC-7 | NMB CO. |
| 8 | | 9 | 2 | 6 | 0 | 0 | 1 | -0002 | | 2 | BEARING, PRECISION | | | | | | | SSRI-418LL-ABEC-7 | NMB CO. |
| 9 | | 9 | 2 | 7 | 0 | 0 | 0 | -0003 | | 1 | PLUNGER, SPRING | | | | | | | S-53-001-03 | VLIER ENG. |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | 9 | 2 | 9 | 0 | 0 | 4 | -0001 | | 2 | SCREW, SHOULDER #4-40 | | | | | | | PL-1 | W.M. BERG, INC. |
| 12 | | 9 | 2 | 9 | 0 | 0 | 4 | -0002 | | 4 | SCREW, SHOULDER #4-40 | | | | | | | PL-2 | W.M. BERG, INC. |
| 13 | | 9 | 2 | 9 | 0 | 0 | 4 | -0004 | | 2 | SCREW, SHOULDER #8-32 | | | | | | | PL-10 | W.M. BERG, INC. |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | 9 | - | M | S | 7 | 7 | 066/6 | | 2 | LUG, SOLDER #6 | | | | | | | | |
| 16 | | 9 | - | M | S | 7 | 7 | 066/10 | | 1 | LUG, SOLDER #10 | | | | | | | | |
| 17 | | 9 | 2 | 9 | 0 | 0 | 6 | -0001 | | 2 | WASHER, NYLON | | | | | | | NW6-3125 | WECKESSER |
| 18 | | 9 | 2 | 7 | 0 | 0 | 1 | -0004 | | 2 | SPRING EXTENSION | | | | | | | LE-031B-00 | LEE SPRING |
| 19 | | 1 | 0 | 2 | 2 | 1 | 4 | | | 1 | BUSHING, PLAIN | | X | | X | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 43 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 0 | 2 | 2 | 2 | 6 | | N/C | 1 | PULLEY | | X | | X | | | | |
| 2 | | 1 | 0 | 2 | 2 | 2 | 5 | | N/C | 1 | PULLEY, HUBLESS | | X | | X | | | | |
| 3 | | 9 | 2 | 9 | 0 | 1 | 8 | -0001 | | 1 | BELT, .187 WIDE | | | | | | | 102T (40DP) | SECS INC. |
| 4 | | 1 | 0 | 2 | 2 | 2 | 0 | | B | 1 | ALARM | | | X | | | | | |
| 5 | | 9 | - | M | S | 5 | 1 | 957-26 | | 2 | SCREW, PAN HD. | | | | | | | | |
| 6 | | 9 | 2 | 3 | 0 | 0 | 2 | -0002 | | 1 | CONNECTOR, GASKET EMI | | | | | | | 08-0301-0069 | METEX CORP. |
| 7 | | 9 | 2 | 3 | 0 | 0 | 2 | -0001 | | 1 | CONNECTOR, GASKET EMI | | | | | | | 08-0301-0068 | METEX CORP. |
| 8 | | 9 | - | M | S | 3 | 1 | 06E22-2S | | 1 | CONNECTOR | | | | | | | | |
| 9 | | 9 | - | M | S | 3 | 1 | 26F20-41S | | 1 | CONNECTOR | | | | | | | | |
| 10 | | 9 | - | M | S | 1 | 6 | 106-4 | | 1 | SWITCH | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | 9 | - | H | S | 3 | 1 | 81-20C | | 1 | CAP, CONNECTOR | | | | | | | | |
| 13 | | 9 | - | M | S | 2 | 5 | 043-22C | | 1 | CAP, CONNECTOR | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | 9 | - | M | S | 1 | 7 | 1585 | | 3 | PIN, SPRING .188 DIA x .44 LG | | | | | | | | |
| 16 | | 9 | - | M | S | 1 | 7 | 1586 | | 1 | PIN, SPRING, .188 DIA x .50 LG | | | | | | | | |
| 17 | | 9 | - | M | S | 1 | 7 | 1587 | | 1 | PIN, SPRING, .188 DIA X .56 LG | | | | | | | | |
| 18 | | 9 | - | M | S | 1 | 7 | 1496 | | 1 | PIN, SPRING, .094 DIA x .50 LG | | | | | | | | |
| 19 | | 9 | - | M | S | 1 | 7 | 1466 | | 1 | PIN, SPRING, .078 DIA x .50 LG | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV

SHEET 44 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ← INDENT | CHG LVL | QTY PER | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 9 | - | M | S | 5 | 1 | 957-2 | | 8 | SCREW, PAN HD #2-56 x .19 LG | | | | | | | | |
| 2 | | 9 | - | M | S | 5 | 1 | 957-12 | | 6 | SCREW, PAN HD #4-40 x .19 LG | | | | | | | | |
| 3 | | 9 | - | M | S | 5 | 1 | 957-13 | | 6 | SCREW, PAN HD #4-40 x .25 LG | | | | | | | | |
| 4 | | 9 | - | M | S | 5 | 1 | 957-14 | | 14 | SCREW, PAN HD #4-40 x .31 LG | | | | | | | | |
| 5 | | 9 | - | M | S | 5 | 1 | 957-15 | | 10 | SCREW, PAN HD #4-40 x .38 LG | | | | | | | | |
| 6 | | 9 | - | M | S | 5 | 1 | 957-16 | | 1 | SCREW, PAN HD #4-40 x .44 LG | | | | | | | | |
| 7 | | 9 | - | M | S | 5 | 1 | 957-17 | | 4 | SCREW, PAN HD, #4-40 x .50 LG | | | | | | | | |
| 8 | | 9 | - | M | S | 5 | 1 | 957-18 | | 5 | SCREW, PAN HD, #4-40 x .62 LG | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | 9 | - | M | S | 2 | 4 | 693-C1 | | 6 | SCREW, FLAT HD #4-40 x .19 LG | | | | | | | | |
| 11 | | 9 | - | M | S | 2 | 4 | 693-C5 | | 4 | SCREW, FLAT HD #4-40 x .44 LG | | | | | | | | |
| 12 | | 9 | - | M | S | 2 | 4 | 693-C7 | | 2 | SCREW, FLAT HD #4-40 x .62 LG | | | | | | | | |
| 13 | | 9 | - | M | S | 2 | 1 | 295-7 | | 1 | SCREW, SOC CAP #4-40 x .31 LG | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | 9 | - | M | S | 5 | 1 | 957-26 | | 2 | SCREW, PAN HD #6-32 x .25 LG | | | | | | | | |
| 16 | | 9 | - | M | S | 5 | 1 | 957-27 | | 1 | SCREW, PAN HD #6-32 x .31 LG | | | | | | | | |
| 17 | | 9 | - | M | S | 5 | 1 | 957-29 | | 4 | SCREW, PAN HD #6-32 x .44 LG | | | | | | | | |
| 18 | | 9 | - | M | S | 5 | 1 | 957-30 | | 2 | SCREW, PAN HD #6-32 x .50 LG | | | | | | | | |
| 19 | | 9 | - | M | S | 5 | 1 | 957-31 | | 2 | SCREW, PAN HD #6-32 x .62 LG | | | | | | | | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059
RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV
SHEET 45 OF 47

| ITEM NO. | DIG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INDENT | CHG LVL | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY C D E F G H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 9 | - | M | S | 2 | 4 | 693-C28 | | 2 | SCREW, FLAT HD #6-32 x .50 LG | | | |
| 2 | | 9 | - | M | S | 1 | 6 | 995-18 | | 2 | SCREW, SOC CAP #6-32 x .50 LG | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | 9 | - | M | S | 5 | 1 | 957-43 | | 2 | SCREW, PAN HD #8-32 x .38 LG | | | |
| 5 | | 9 | - | M | S | 5 | 1 | 957-44 | | 6 | SCREW, PAN HD #8-32 x .44 LG | | | |
| 6 | | 9 | - | M | S | 5 | 1 | 957-46 | | 5 | SCREW, PAN HD #8-32 x .62 LG | | | |
| 7 | | 9 | - | M | S | 5 | 1 | 957-47 | | 2 | SCREW, PAN HD #8-32 x .75 LG | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | 9 | - | M | S | 2 | 4 | 693-C46 | | 1 | SCREW, FLAT HD #8-32 x .25 LG | | | |
| 10 | | 9 | - | M | S | 2 | 4 | 693-C48 | | 1 | SCREW, FLAT HD #8-32 x .38 LG | | | |
| 11 | | 9 | - | M | S | 2 | 4 | 693-C50 | | 1 | SCREW, FLAT HD #8-32 x .50 LG | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | 9 | - | M | S | 5 | 1 | 958-60 | | 2 | SCREW, PAN HD #10-32 x .31 LG | | | |
| 14 | | 9 | - | M | S | 1 | 6 | 995-83 | | 1 | SCREW, SOC CAP #3/8-16 x 1.50LG | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | 9 | - | M | S | 1 | 5 | 795-802 | | 3 | WASHER, FLAT #2 | | | |
| 17 | | 9 | - | M | S | 3 | 5 | 338-134 | | 3 | WASHER, LOCK-SPRING #2 | | | |
| 18 | | 9 | - | M | S | 1 | 5 | 795-804 | | 28 | WASHER, FLAT #4 | | | |
| 19 | | 9 | - | N | A | S | 6 | 20C4L | | 12 | WASHER, FLAT, REDUCED O.D.#4 | | | |

RELFASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY . BUNKER RAMO

DOCUMENT NO. 102400-300
SHEET 46 OF 47

REV

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | —4— INDENT | CHG LTR | QTY REQ | DESCRIPTION | MIL-D-1000 CATEGORY B | C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 9 | - | M | S | 3 | 5 | 338-135 | | 24 | WASHER, LOCK-SPRING #4 | | | | | | | | | |
| 2 | | 9 | - | M | S | 1 | 5 | 795-806 | | 13 | WASHER, FLAT #6 | | | | | | | | | |
| 3 | | 9 | - | M | S | 3 | 5 | 338-136 | | 7 | WASHER, LOCK-SPRING #6 | | | | | | | | | |
| 4 | | 9 | - | M | S | 1 | 5 | 795-841 | | 15 | WASHER, FLAT #8 | | | | | | | | | |
| 5 | | 9 | - | M | S | 3 | 5 | 338-137 | | 11 | WASHER, LOCK-SPRING #8 | | | | | | | | | |
| 6 | | 9 | - | M | S | 1 | 5 | 795-842 | | 1 | WASHER, FLAT #10 | | | | | | | | | |
| 7 | | 9 | - | M | S | 1 | 5 | 795-813 | | 2 | WASHER, FLAT #3/8 | | | | | | | | | |
| 8 | | 9 | - | M | S | 3 | 5 | 338-141 | | 1 | WASHER, LOCK-SPRING #3/8 | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | |
| 10 | | 9 | - | M | S | 2 | 1 | 083C04 | | 12 | NUT, LOCKING HEX #4-40 | | | | | | | | | |
| 11 | | 9 | - | N | A | S | 6 | 71C6 | | 2 | NUT, HEX, SMALL PATTERN #6-32 | | | | | | | | | |
| 12 | | 9 | - | M | S | 2 | 5 | 082-3 | | 1 | NUT, PLAIN HEX #10-32 | | | | | | | | | |
| 13 | | 9 | - | M | S | 3 | 5 | 691-19 | | 1 | NUT, PLAIN HEX #3/8-16 | | | | | | | | | |
| 14 | | 9 | 2 | 2 | 0 | 0 | 5 | -0002 | | AR | TAPE, FOAM ADHESIVE | | | | | | | | 4516 ½ WIDE | 3M CO. |
| 15 | | 9 | - | G | R | A | D | E "C" | | AR | RETAINING COMPOUND | | | | | | | | LIQUID COLOR CODE: BLUE | MIL-S-22473 |
| 16 | | 9 | - | S | N | 6 | 0 | WRMAP3 | | AR | SOLDER, TIN ALLOY | | | | | | | | | QQ-S-571 |
| 17 | | | | | | | | | | | | | | | | | | | | |
| 18 | | 1 | 0 | 2 | 4 | 0 | 0 | -200 | N/C | REF | INTERFACE CONTROL DRAWING | X | | | | | X | X | | |
| 19 | | 1 | 0 | 2 | 4 | 0 | 0 | -740 | N/C | REF | TEST SPECIFICATION | | | | | | | | | |

RELEASED DWG: _____ DATE: _____ APPROVED: _____

EQUIPMENT: TT-649/UY BUNKER RAMO

DOCUMENT NO. 102400-300 REV
SHEET 47 OF 47

| ITEM NO. | DWG NO. 0 | 1 | 2 | 3 | 4 | 5 | 6 | ◄— INCENT | CHG LVL | QTY PER | DESCRIPTION | MIL-D-1000 CATEGORY C | D | E | F | G | H | PART NO. | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | X | | | | | | | |
| 2 | | 1 | 0 | 2 | 4 | 0 | 0 | -350 | N/C | REF | DRAWING TREE | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | 1 | 0 | 1 | [illegible] | 9 | 2 | -340 | A | REF | DIAGRAM BLOCK | | | X | | | | | |
| 5 | | 1 | 0 | 2 | 4 | 0 | 4 | -320 | N/C | REF | SCHEMATIC, INTERCONNECTION | | | X | | X | X | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | Released Drawing | 5/3/73 | |
| A | 0913 N/C 2 | SEE ECO | 8/14/73 | |
| B | 1-1 0811 | See ECO | 10/9/73 | |

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (I) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (II) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

NOTE: FOR USE WITH LOGIC DIAGRAMS 102410-320

A B C D E F G H I J

MIL - D - 1000 INTENDED USE CATEGORY

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOL. .XX ± .__, .XXX ± .__,
FRACT. ± .030 ANG. ± 0°30'

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001

CONTRACT NO.

| | | |
|---|---|---|
| DRAWN | A. Buerner | 4-26-7 |
| CHECK | T. J. Kovacs | |
| ELEC. | | |
| MECH | | |
| DESIGN | | |
| APPR: | Jean Baker | 5/3/73 |
| APPROVED | | 5/3/73 |
| APPROVED | | |

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

LOGIC WIRE LIST

| CODE IDENT NO. | SIZE | | REV. |
|---|---|---|---|
| 19059 | A | 102410-860 | D |

| NEXT ASSY | USED ON |
|---|---|
| 102410-100 | |

APPLICATION — DO NOT SCALE DRAWING — SCALE — WEIGHT — SHEET 1 of 34

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | 9-1 | 9-2 | #30AWG KYNAR-UL #1422-9 | |
| 2 | 9-2 | 9-3 | | |
| 3 | 9-3 | 9-4 | | |
| 4 | 9-10 | 9-11 | | |
| 5 | 9-11 | 9-12 | | |
| 6 | 9-12 | 9-13 | | |
| 7 | 10-1 | 10-2 | | |
| 8 | 10-2 | 10-3 | | |
| 9 | 10-3 | 10-4 | | |
| 10 | 10-10 | 10-11 | | |
| 11 | 10-11 | 10-12 | | |
| 12 | 10-12 | 10-13 | | |
| 13 | 110-3 | 110-4 | | |
| 14 | 121-1 | 121-2 | | |
| 15 | 121-4 | 121-5 | | |
| 16 | 121-9 | 121-10 | | |
| 17 | 121-12 | 121-13 | | |
| 18 | 36-2 | 36-3 | | |
| 19 | 25-2 | 25-3 | | |
| 20 | 88-1 | 88-2 | | |
| 21 | 88-4 | 88-5 | | |
| 22 | 88-9 | 88-10 | | |
| 23 | 89-1 | 89-2 | | |
| 24 | 89-4 | 89-5 | | |
| 25 | 89-9 | 89-10 | | |
| 26 | 72-12 | 72-13 | | |
| 27 | 83-1 | 83-2 | | |
| 28 | 83-4 | 83-5 | | |
| 29 | 83-9 | 83-10 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 30 | 94-9 | 94-10 | #30AWG KYNAR-UL #1422-9 | |
| 31 | 102-2 | 102-3 | | |
| 32 | 113-2 | 113-3 | | |
| 33 | 46-2 | 46-3 | | |
| 34 | 79-1 | 79-2 | | |
| 35 | 79-4 | 79-5 | | |
| 36 | 79-9 | 79-10 | | |
| 37 | 112-2 | 112-3 | | |
| 38 | 48-3 | 48-4 | | |
| 39 | 35-2 | 35-3 | | |
| 40 | 54-4 | 54-5 | | |
| 41 | 122-1 | 122-2 | | |
| 42 | 122-5 | 122-9 | | |
| 43 | 122-5 | TP-2 | | |
| 44 | 122-12 | 122-13 | | |
| 45 | 55-1 | 55-2 | | |
| 46 | 55-4 | 55-5 | | |
| 47 | 54-9 | 54-10 | | |
| 48 | 54-12 | 54-13 | | |
| 49 | 72-3 | 72-4 | | |
| 50 | 72-4 | 72-5 | | |
| 51 | 72-5 | 72-6 | | |
| 52 | 72-6 | 72-7 | | |
| 53 | 11-6 | 11-7 | | |
| 54 | 11-2 | 11-3 | | |
| 55 | 11-11 | 11-12 | | |
| 56 | 13-5 | 13-6 | | |
| 57 | 13-6 | 13-7 | | |
| 58 | 111-11 | 111-12 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 59 | 111-12 | 111-13 | #30AWG KYNAR-UL #1422-9 | |
| 60 | 111-13 | 111-14 | | |
| 61 | 82-2 | 82-3 | | |
| 62 | 82-3 | 82-4 | | |
| 63 | 127-5 | 127-5 | | |
| 64 | 11-13 | 11-14 | | |
| 65 | 52-9 | 52-10 | | |
| 66 | 52-12 | 52-13 | | |
| 67 | 74-11 | 74-12 | | |
| 68 | 74-12 | 74-13 | | |
| 69 | 91-8 | 91-9 | | |
| 70 | 91-9 | 91-10 | | |
| 71 | 91-10 | 91-11 | | |
| 72 | 91-11 | 91-12 | | |
| 73 | 91-12 | 91-13 | | |
| 74 | 91-13 | 91-14 | | |
| 75 | 3-10 | 3-11 | | |
| 76 | 92-3 | 92-4 | | |
| 77 | 29-13 | 29-14 | | |
| 78 | 32-5 | 32-5 | | |
| 79 | 32-11 | 32-12 | | |
| 80 | 41-11 | 41-12 | | |
| 81 | 105-4 | 105-5 | | |
| 82 | 123-8 | 123-9 | | |
| 83 | 123-11 | 123-12 | | |
| 84 | 45-10 | 45-11 | | |
| 85 | 53-12 | 53-13 | | |
| 86 | 95-2 | 38-5 | | |
| 87 | 38-10 | 38-11 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 88 | 57-1 | 57-2 | #30AWG KYNAR-UL #1422-9 | |
| 89 | 57-3 | 57-4 | | |
| 90 | 38-9 | 38-10 | | |
| 91 | 117-1 | 117-2 | | |
| 92 | 127-1 | 116-9 | | |
| 93 | 129-13 | 127-5 | | |
| 94 | TP-23 | 127-3 | | |
| 95 | 57-9 | 57-10 | | |
| 96 | 110-3 | 124-9 | | |
| 97 | 124-8 | 117-4 | | |
| 98 | 117-4 | 99-2 | | |
| 99 | 99-2 | 98-9 | | |
| 100 | 116-1 | 125-5 | | |
| 101 | 23-12 | 80-26 | | |
| 102 | 3-10 | TP-68 | | |
| 103 | 128-12 | 105-10 | | |
| 104 | 105-8 | 105-1 | | |
| 105 | 42-10 | 105-9 | | |
| 106 | 30-12 | 42-10 | | |
| 107 | 77-8 | 119-2 | | |
| 108 | 117-12 | 127-2 | | |
| 109 | 1-2 | 5-3 | | |
| 110 | 1-4 | 5-11 | | |
| 111 | 1-6 | 6-3 | | |
| 112 | 1-8 | 6-11 | | |
| 113 | 1-10 | 7-3 | | |
| 114 | 1-12 | 7-11 | | |
| 115 | 1-14 | 8-3 | | |
| 116 | 2-2 | 8-11 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 117 | 1-1 | 5-1 | #30AWG KYNAR-UL #1422-9 | |
| 118 | | | | |
| 119 | 1-3 | 5-13 | | |
| 120 | | | | |
| 121 | 1-5 | 6-1 | | |
| 122 | | | | |
| 123 | 1-7 | 6-13 | | |
| 124 | | | | |
| 125 | 1-9 | 7-1 | | |
| 126 | | | | |
| 127 | 1-11 | 7-13 | | |
| 128 | | | | |
| 129 | 1-13 | 8-1 | | |
| 130 | | | | |
| 131 | 2-1 | 8-13 | | |
| 132 | | | | |
| 133 | 9-5 | 9-9 | | |
| 134 | 9-9 | 10-5 | | |
| 135 | 10-5 | 10-9 | | |
| 136 | 2-3 | 9-6 | | |
| 137 | 9-6 | 9-8 | | |
| 138 | 9-8 | 10-6 | | |
| 139 | 10-6 | 10-8 | | |
| 140 | 43-6 | 5-4 | | |
| 141 | 5-4 | 5-10 | | |
| 142 | 5-10 | 6-4 | | |
| 143 | 6-4 | 6-10 | | |
| 144 | 6-10 | 7-4 | | |
| 145 | 7-4 | 7-10 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 146 | 7-10 | 8-4 | #30AWG KYNAR-UL #1422-9 | |
| 147 | 8-4 | 8-10 | | |
| 148 | 21-12 | 9-1 | | |
| 149 | 9-4 | 9-10 | | |
| 150 | 9-13 | 10-1 | | |
| 151 | 10-4 | 10-10 | | |
| 152 | 5-6 | 17-1 | | |
| 153 | 5-8 | 17-4 | | |
| 154 | 6-6 | 17-9 | | |
| 155 | 6-8 | 17-12 | | |
| 156 | 7-6 | 18-1 | | |
| 157 | 7-8 | 18-4 | | |
| 158 | 8-6 | 18-9 | | |
| 159 | 8-8 | 18-12 | | |
| 160 | 19-2 | 17-2 | | |
| 161 | 19-4 | 17-5 | | |
| 162 | 19-6 | 17-10 | | |
| 163 | 19-8 | 17-13 | | |
| 164 | 19-10 | 18-2 | | |
| 165 | 19-12 | 18-5 | | |
| 166 | 20-2 | 18-10 | | |
| 167 | 17-3 | 27-2 | | |
| 168 | 17-6 | 27-12 | | |
| 169 | 17-8 | 28-2 | | |
| 170 | 17-11 | 28-12 | | |
| 171 | 18-3 | 29-2 | | |
| 172 | 18-6 | 29-12 | | |
| 173 | 18-8 | 30-2 | | |
| 174 | 27-1 | 27-13 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 175 | 27-13 | 28-1 | #30AWG KYNAR-UL #1422-9 | |
| 176 | 28-1 | 28-13 | | |
| 177 | 28-13 | 29-1 | | |
| 178 | 29-1 | 29-10 | | |
| 179 | 29-10 | 30-1 | | |
| 180 | 20-10 | 27-3 | | |
| 181 | 27-3 | 27-11 | | |
| 182 | 27-11 | 28-3 | | |
| 183 | 28-3 | 28-11 | | |
| 184 | 28-11 | 29-3 | | |
| 185 | 29-3 | 29-11 | | |
| 186 | 29-11 | 30-3 | | |
| 187 | 30-3 | 56-3 | | |
| 188 | 25-12 | 25-1 | | |
| 189 | 25-1 | 19-1 | | |
| 190 | 25-9 | 19-3 | | |
| 191 | 25-8 | 19-5 | | |
| 192 | 25-11 | 19-9 | | |
| 193 | 25-11 | 36-1 | | |
| 194 | 36-9 | 19-11 | | |
| 195 | 36-8 | 19-13 | | |
| 196 | 36-11 | 20-1 | | |
| 197 | 32-1 | 20-5 | | |
| 198 | 20-6 | 24-2 | | |
| 199 | 24-3 | 24-9 | | |
| 200 | 24-6 | 24-10 | | |
| 201 | 24-8 | 25-14 | | |
| 202 | 12-6 | 18-13 | | |
| 203 | 18-11 | 20-9 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 204 | 20-8 | 20-11 | #30AWG KYNAR-UL #1422-9 | |
| 205 | 33-3 | 33-6 | | |
| 206 | 33-6 | 33-9 | | |
| 207 | 33-9 | 33-12 | | |
| 208 | 34-12 | 33-2 | | |
| 209 | 33-2 | 22-9 | | |
| 210 | 34-6 | 33-5 | | |
| 211 | 33-5 | 22-10 | | |
| 212 | 34-8 | 33-8 | | |
| 213 | 33-8 | 22-12 | | |
| 214 | 45-12 | 33-11 | | |
| 215 | 33-11 | 22-13 | | |
| 216 | 22-8 | 43-2 | | |
| 217 | 20-4 | 43-1 | | |
| 218 | 43-3 | 32-8 | | |
| 219 | 42-4 | 32-9 | | |
| 220 | 56-6 | 21-10 | | |
| 221 | 56-5 | 37-14 | | |
| 222 | 111-4 | 44-1 | | |
| 223 | 44-1 | 44-4 | | |
| 224 | 44-3 | 31-1 | | |
| 225 | 44-6 | 21-4 | | |
| 226 | 31-3 | 31-5 | | |
| 227 | 31-5 | 21-3 | | |
| 228 | 21-6 | 31-2 | | |
| 229 | 31-6 | 31-12 | | |
| 230 | 31-8 | 31-13 | | |
| 231 | 129-8 | 111-3 | | |
| 232 | 111-3 | 110-1 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 233 | 45-3 | 127-6 | #30AWG KYNAR-UL #1422-9 | |
| 234 | 129-10 | 111-2 | | |
| 235 | 111-2 | 109-2 | | |
| 236 | 109-2 | 99-4 | | |
| 237 | 110-6 | 110-2 | | |
| 238 | 127-4 | 127-11 | | |
| 239 | 99-12 | 100-1 | | |
| 240 | 100-2 | 21-2 | | |
| 241 | 100-2 | 121-1 | | |
| 242 | 121-2 | 121-4 | | |
| 243 | 121-5 | 121-9 | | |
| 244 | 121-10 | 121-12 | | |
| 245 | 109-1 | 114-14 | | |
| 246 | 114-14 | 98-1 | | |
| 247 | 99-6 | 100-11 | | |
| 248 | 100-10 | 114-3 | | |
| 249 | 98-3 | 114-7 | | |
| 250 | 111-1 | 111-6 | | |
| 251 | 111-6 | 111-10 | | |
| 252 | 111-10 | 73-13 | | |
| 253 | 73-12 | 118-9 | | |
| 254 | 100-6 | 116-2 | | |
| 256 | 100-9 | 111-8 | | |
| 257 | 37-1 | 114-1 | | |
| 258 | 114-1 | 114-5 | | |
| 259 | 33-10 | 32-2 | | |
| 260 | 32-2 | 44-2 | | |
| 261 | 33-13 | 32-3 | | |
| 262 | 32-3 | 44-5 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 263 | 121-6 | 129-12 | #30AWG KYNAR-UL #1422-9 | |
| 264 | 114-13 | 98-2 | | |
| 265 | 98-2 | 43-5 | | |
| 266 | 43-5 | 36-2 | | |
| 267 | 36-3 | 31-4 | | |
| 268 | 31-4 | 25-2 | | |
| 269 | 25-3 | 21-13 | | |
| 270 | 31-9 | 12-5 | | |
| 271 | 114-8 | 12-1 | | |
| 272 | 27-5 | 45-13 | | |
| 273 | 27-6 | 34-5 | | |
| 274 | 34-5 | 34-11 | | |
| 275 | 34-11 | 34-13 | | |
| 276 | 27-9 | 34-2 | | |
| 277 | 34-2 | 34-10 | | |
| 278 | 34-10 | 45-2 | | |
| 279 | 27-8 | 34-4 | | |
| 280 | 28-5 | 34-3 | | |
| 281 | 34-3 | 34-9 | | |
| 282 | 34-9 | 45-1 | | |
| 283 | 28-6 | 34-1 | | |
| 284 | 28-9 | 22-5 | | |
| 285 | 29-6 | 22-4 | | |
| 286 | 29-8 | 22-2 | | |
| 287 | 30-6 | 22-1 | | |
| 288 | 39-3 | 60-1 | | |
| 289 | 39-6 | 60-7 | | |
| 290 | 39-8 | 61-1 | | |
| 291 | 39-11 | 61-7 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 292 | 40-3 | 62-1 | #30AWG KYNAR-UL #1422-9 | |
| 293 | 40-6 | 62-7 | | |
| 294 | 40-8 | 63-1 | | |
| 295 | 40-11 | 63-7 | | |
| 296 | 60-2 | 66-1 | | |
| 297 | 60-6 | 66-7 | | |
| 298 | 61-2 | 67-1 | | |
| 299 | 61-6 | 67-7 | | |
| 300 | 62-2 | 68-1 | | |
| 301 | 62-6 | 68-7 | | |
| 302 | 63-2 | 69-1 | | |
| 303 | 63-6 | 69-7 | | |
| 304 | 66-2 | 76-1 | | |
| 305 | 66-6 | 76-3 | | |
| 306 | 67-2 | 76-5 | | |
| 307 | 67-6 | 76-9 | | |
| 308 | 68-2 | 76-11 | | |
| 309 | 68-6 | 76-13 | | |
| 310 | 69-2 | 77-3 | | |
| 311 | 69-6 | 77-5 | | |
| 312 | 76-2 | 78-1 | | |
| 313 | 76-4 | 78-3 | | |
| 314 | 76-8 | 78-5 | | |
| 315 | 76-10 | 78-9 | | |
| 316 | 76-12 | 77-1 | | |
| 317 | 77-4 | 78-13 | | |
| 318 | 54-6 | 63-3 | | |
| 319 | 63-3 | 62-3 | | |
| 320 | 62-3 | 61-3 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 321 | 61-3 | 60-3 | #30AWG KYNAR-UL #1422-9 | |
| 322 | 60-3 | 66-3 | | |
| 323 | 66-3 | 67-3 | | |
| 324 | 67-3 | 68-3 | | |
| 325 | 68-3 | 69-3 | | |
| 326 | 88-2 | 109-12 | | |
| 327 | 86-2 | 109-11 | | |
| 328 | 88-10 | 86-10 | | |
| 329 | 86-10 | 86-4 | | |
| 330 | 86-1 | 109-9 | | |
| 331 | 84-13 | 109-8 | | |
| 332 | 89-10 | 84-5 | | |
| 333 | 84-2 | 86-3 | | |
| 334 | 84-4 | 84-12 | | |
| 335 | 84-3 | 84-9 | | |
| 336 | 84-9 | 85-8 | | |
| 337 | 84-6 | 84-10 | | |
| 338 | 84-8 | 85-2 | | |
| 339 | 84-11 | 85-12 | | |
| 340 | 85-12 | 109-5 | | |
| 341 | 86-12 | 85-11 | | |
| 342 | 85-11 | 109-6 | | |
| 343 | 109-4 | 85-3 | | |
| 344 | 109-10 | 86-9 | | |
| 345 | 109-13 | 86-11 | | |
| 346 | 86-8 | 85-9 | | |
| 347 | 85-1 | 85-5 | | |
| 348 | 85-10 | 85-6 | | |
| 349 | 85-4 | 96-3 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 350 | 85-13 | 86-5 | #30AWG KYNAR-UL #1422-9 | |
| 351 | 96-3 | 96-11 | | |
| 352 | 96-11 | 97-11 | | |
| 353 | 86-6 | 96-6 | | |
| 354 | 96-6 | 97-5 | | |
| 355 | 97-5 | 100-13 | | |
| 356 | 96-10 | 96-12 | | |
| 357 | 97-1 | 97-6 | | |
| 358 | 97-10 | 97-12 | | |
| 359 | 96-1 | 87-2 | | |
| 360 | 87-2 | 87-11 | | |
| 361 | 96-4 | 87-3 | | |
| 362 | 96-13 | 87-5 | | |
| 363 | 97-4 | 87-6 | | |
| 364 | 87-6 | 87-8 | | |
| 365 | 97-13 | 87-9 | | |
| 366 | 100-12 | 87-12 | | |
| 367 | 87-1 | 90-1 | | |
| 368 | 87-4 | 90-4 | | |
| 369 | 90-4 | 90-12 | | |
| 370 | 87-10 | 90-9 | | |
| 371 | 87-13 | 101-1 | | |
| 372 | 81-10 | 100-3 | | |
| 373 | 100-4 | 101-10 | | |
| 374 | 101-8 | 128-6 | | |
| 375 | 74-2 | 79-3 | | |
| 376 | 79-3 | 80-2 | | |
| 377 | 74-3 | 79-6 | | |
| 378 | 79-6 | 80-3 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 379 | 74-4 | 79-8 | #30AWG KYNAR-UL #1422-9 | |
| 380 | 79-8 | 80-4 | | |
| 381 | 86-3 | 110-9 | | |
| 382 | 84-12 | 110-10 | | |
| 383 | 97-11 | 79-13 | | |
| 384 | 110-8 | 79-12 | | |
| 385 | 79-11 | 80-12 | | |
| 386 | 80-12 | 91-1 | | |
| 387 | 91-2 | 88-3 | | |
| 388 | 88-3 | 80-19 | | |
| 389 | 91-3 | 88-6 | | |
| 390 | 88-6 | 80-20 | | |
| 391 | 91-4 | 88-8 | | |
| 392 | 88-8 | 80-21 | | |
| 393 | 91-5 | 89-3 | | |
| 394 | 89-3 | 80-22 | | |
| 395 | 91-6 | 89-6 | | |
| 396 | 89-6 | 80-23 | | |
| 397 | 91-7 | 89-8 | | |
| 398 | 89-8 | 80-28 | | |
| 399 | 80-6 | 74-5 | | |
| 400 | 80-7 | 74-6 | | |
| 401 | 80-8 | 74-7 | | |
| 402 | 80-9 | 72-1 | | |
| 403 | 80-10 | 72-2 | | |
| 404 | 72-13 | 73-11 | | |
| 405 | 72-11 | 72-14 | | |
| 406 | 72-14 | 73-9 | | |
| 407 | 72-10 | 73-5 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 408 | 73-5 | 74-8 | #30AWG KYNAR-UL #1422-9 | |
| 409 | 72-9 | 73-3 | | |
| 410 | 73-3 | 74-9 | | |
| 411 | 72-8 | 73-1 | | |
| 412 | 73-1 | 74-10 | | |
| 413 | 73-2 | 90-2 | | |
| 414 | 73-4 | 90-5 | | |
| 415 | 73-6 | 90-10 | | |
| 416 | 73-8 | 90-13 | | |
| 417 | 73-10 | 101-2 | | |
| 418 | 90-3 | 81-7 | | |
| 419 | 90-6 | 81-6 | | |
| 420 | 90-8 | 81-4 | | |
| 421 | 90-11 | 81-3 | | |
| 422 | 101-3 | 81-2 | | |
| 423 | 75-1 | 88-1 | | |
| 424 | 83-3 | 75-12 | | |
| 425 | 75-8 | 83-4 | | |
| 426 | 75-3 | 83-6 | | |
| 427 | 83-6 | 83-9 | | |
| 428 | 83-8 | 82-1 | | |
| 429 | 82-1 | 82-5 | | |
| 430 | 82-12 | 82-10 | | |
| 431 | 82-10 | 82-7 | | |
| 432 | 94-1 | 94-5 | | |
| 433 | 94-12 | 94-3 | | |
| 434 | 94-3 | 94-7 | | |
| 435 | 94-8 | 94-14 | | |
| 436 | 94-14 | 83-13 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 437 | 32-10 | 77-11 | #30AWG KYNAR-UL #1422-9 | |
| 438 | 77-10 | 83-12 | | |
| 439 | 83-11 | 102-14 | | |
| 440 | 110-12 | 77-12 | | |
| 441 | 77-12 | 46-1 | | |
| 442 | 94-5 | 110-13 | | |
| 443 | 110-11 | 101-12 | | |
| 444 | 37-2 | 101-13 | | |
| 445 | 101-11 | 102-2 | | |
| 446 | 102-3 | 113-2 | | |
| 447 | 102-12 | 102-1 | | |
| 448 | 102-11 | 113-1 | | |
| 449 | 113-9 | 106-2 | | |
| 450 | 113-11 | 106-1 | | |
| 451 | 106-3 | 77-13 | | |
| 452 | 77-8 | 94-2 | | |
| 453 | 101-13 | 94-6 | | |
| 454 | 46-11 | 46-14 | | |
| 455 | 46-12 | 42-13 | | |
| 456 | 94-6 | 37-6 | | |
| 457 | 37-9 | 106-10 | | |
| 458 | 106-10 | 108-11 | | |
| 459 | 106-8 | 106-13 | | |
| 460 | 106-6 | 106-12 | | |
| 461 | 106-11 | 112-14 | | |
| 462 | 112-12 | 79-1 | | |
| 463 | 79-2 | 59-18 | | |
| 464 | 112-9 | 79-4 | | |
| 465 | 79-5 | 59-14 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 466 | 112-8 | 79-9 | #30AWG KYNAR-UL #1422-9 | |
| 467 | 79-10 | 59-13 | | |
| 468 | 112-11 | 59-12 | | |
| 469 | 112-12 | 112-1 | | |
| 470 | 112-11 | 108-3 | | |
| 471 | 108-3 | 108-1 | | |
| 472 | 108-12 | 107-1 | | |
| 473 | 107-2 | 98-4 | | |
| 474 | 98-6 | 106-4 | | |
| 475 | 107-1 | 106-9 | | |
| 476 | 127-12 | TP-46 | | |
| 477 | | | | |
| 478 | 128-12 | 23-4 | | |
| 479 | 127-13 | 110-5 | | |
| 480 | 108-6 | 105-2 | | |
| 481 | 105-3 | 112-2 | | |
| 482 | 46-8 | 123-3 | | |
| 483 | 125-5 | 99-11 | | |
| 484 | 37-6 | 125-2 | | |
| 485 | 125-2 | 125-6 | | |
| 486 | 119-2 | 119-5 | | |
| 487 | 119-5 | 119-8 | | |
| 488 | 119-8 | 119-11 | | |
| 489 | 125-12 | 125-7 | | |
| 490 | 125-7 | 119-6 | | |
| 491 | 119-6 | 120-8 | | |
| 492 | 125-13 | 125-10 | | |
| 493 | 125-10 | 119-12 | | |
| 494 | 119-12 | 120-2 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 495 | 125-9 | 125-3 | #30AWG KYNAR-UL #1422-9 | |
| 496 | 125-3 | 119-9 | | |
| 497 | 119-9 | 120-11 | | |
| 498 | 125-8 | 125-14 | | |
| 499 | 125-14 | 119-3 | | |
| 500 | 119-3 | 120-5 | | |
| 501 | 119-1 | 120-3 | | |
| 502 | 119-4 | 120-6 | | |
| 503 | 119-10 | 120-9 | | |
| 504 | 119-13 | 120-12 | | |
| 505 | 120-1 | 128-2 | | |
| 506 | 120-4 | 128-3 | | |
| 507 | 120-10 | 128-4 | | |
| 508 | 120-13 | 128-5 | | |
| 509 | 33-4 | 26-7 | | |
| 510 | 35-12 | 35-1 | | |
| 511 | 35-9 | 48-9 | | |
| 512 | 35-11 | 26-1 | | |
| 513 | 26-12 | 48-10 | | |
| 514 | 26-9 | 48-1 | | |
| 515 | 48-6 | 35-14 | | |
| 516 | 43-8 | 26-2 | | |
| 517 | 26-2 | 26-6 | | |
| 518 | 98-11 | 81-8 | | |
| 519 | 122-6 | 81-1 | | |
| 520 | 117-6 | 77-9 | | |
| 521 | 128-10 | 108-9 | | |
| 522 | 108-9 | 99-13 | | |
| 523 | 92-12 | 92-10 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 524 | 92-10 | 106-5 | #30AWG KYNAR-UL #1422-9 | |
| 525 | 92-12 | 48-2 | | |
| 256 | 33-1 | 42-5 | | |
| 527 | 106-5 | 99-3 | | |
| 528 | 20-12 | 99-1 | | |
| 529 | 129-13 | 74-1 | | |
| 530 | 74-1 | 53-1 | | |
| 531 | 122-6 | 122-8 | | |
| 532 | 122-8 | 128-7 | | |
| 533 | | | | |
| 534 | 98-8 | 128-11 | | |
| 535 | 116-4 | 128-8 | | |
| 536 | 116-10 | 128-1 | | |
| 537 | 123-2 | 52-4 | | |
| 538 | 125-6 | 98-10 | | |
| 539 | 26-8 | 53-4 | | |
| 540 | 42-6 | 53-2 | | |
| 541 | 12-1 | 53-5 | | |
| 542 | 53-6 | 42-9 | | |
| 543 | 42-8 | 44-12 | | |
| 544 | 26-5 | 54-2 | | |
| 545 | 54-2 | 54-4 | | |
| 546 | 83-13 | 41-2 | | |
| 547 | 98-4 | 92-7 | | |
| 548 | 99-8 | 41-3 | | |
| 549 | 41-1 | 41-5 | | |
| 550 | 32-10 | 41-6 | | |
| 551 | 41-4 | 44-9 | | |
| 552 | 44-8 | 54-1 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 553 | 46-9 | 123-2 | #30AWG KYNAR-UL #1422-9 | |
| 554 | 26-3 | 26-14 | | |
| 555 | 26-14 | 26-4 | | |
| 556 | 46-11 | 52-5 | | |
| 557 | 52-5 | 124-1 | | |
| 558 | 46-12 | 37-5 | | |
| 559 | 108-11 | 116-3 | | |
| 560 | 94-13 | 117-10 | | |
| 561 | 82-8 | 117-9 | | |
| 562 | 82-13 | 123-6 | | |
| 563 | 128-10 | 117-3 | | |
| 564 | 48-8 | 43-9 | | |
| 565 | 99-8 | 103-14 | | |
| 566 | 117-6 | 116-6 | | |
| 567 | 116-6 | 116-8 | | |
| 568 | 103-13 | 30-11 | | |
| 569 | 123-1 | 99-9 | | |
| 570 | 124-2 | 99-10 | | |
| 571 | 124-4 | 103-3 | | |
| ? | 124-5 | 117-8 | | |
| 573 | 117-8 | 105-13 | | |
| 574 | 123-4 | 105-12 | | |
| 575 | 105-12 | 98-12 | | |
| 576 | 124-6 | 98-13 | | |
| 577 | 105-11 | 122-1 | | |
| 578 | 122-2 | 122-4 | | |
| 579 | 122-4 | 122-10 | | |
| 580 | 122-10 | 122-12 | | |
| 581 | 52-6 | 30-13 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 582 | 23-1 | 23-3 | #30AWG KYNAR-UL #1422-9 | |
| 583 | 23-3 | 23-8 | | |
| 584 | 23-8 | 55-1 | | |
| 585 | 55-2 | 55-4 | | |
| 586 | 55-6 | 55-9 | | |
| 587 | 13-8 | 13-11 | | |
| 588 | 13-11 | 55-13 | | |
| 589 | 13-9 | 13-12 | | |
| 590 | 13-12 | 55-12 | | |
| 591 | 13-10 | 13-13 | | |
| 592 | 13-13 | 55-10 | | |
| 593 | 55-8 | 20-13 | | |
| 594 | 92-8 | 54-9 | | |
| 595 | 54-10 | 54-12 | | |
| 596 | 51-1 | 51-4 | | |
| 597 | 51-4 | 51-9 | | |
| 598 | 51-9 | 51-12 | | |
| 599 | 51-12 | 50-1 | | |
| 600 | 50-1 | 50-4 | | |
| 601 | 50-4 | 50-9 | | |
| 602 | 50-9 | 50-12 | | |
| 603 | 50-11 | 39-2 | | |
| 604 | 50-8 | 39-5 | | |
| 605 | 50-6 | 39-10 | | |
| 606 | 50-3 | 39-13 | | |
| 607 | 51-6 | 40-2 | | |
| 608 | 51-3 | 40-5 | | |
| 609 | 51-11 | 40-10 | | |
| 610 | 51-8 | 40-13 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 611 | 56-7 | 57-7 | #30AWG KYNAR-UL #1422-9 | |
| 612 | 81-9 | 81-12 | | |
| 613 | 57-7 | 72-7 | | |
| 614 | 52-7 | 51-7 | | |
| 615 | 54-7 | 55-7 | | |
| 616 | 58-7 | 47-10 | | |
| 617 | 59-8 | 48-7 | | |
| 618 | 77-7 | 76-7 | | |
| 619 | 85-7 | 86-7 | | |
| 620 | 87-7 | 88-7 | | |
| 621 | 89-7 | 90-7 | | |
| 622 | 11-6 | 11-3 | | |
| 623 | 11-2 | 11-12 | | |
| 624 | 50-7 | 51-7 | | |
| 625 | 73-7 | 47-10 | | |
| 626 | 73-14 | 57-14 | | |
| 627 | 56-2 | 56-4 | | |
| 628 | 56-4 | 56-14 | | |
| 629 | 56-14 | 57-14 | | |
| 630 | 114-2 | 114-4 | | |
| 631 | 114-4 | 114-6 | | |
| 632 | 114-6 | 114-10 | | |
| 633 | 53-14 | 63-4 | | |
| 634 | 63-4 | 62-4 | | |
| 635 | 62-4 | 61-4 | | |
| 636 | 51-4 | 60-4 | | |
| 637 | 78-14 | 69-4 | | |
| 638 | 69-4 | 68-4 | | |
| 639 | 68-4 | 67-4 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 640 | 67-4 | 66-4 | #30AWG KYNAR-UL #1422-9 | |
| 641 | 66-4 | 60-4 | | |
| 642 | 52-14 | 51-14 | | |
| 643 | 54-14 | 55-14 | | |
| 644 | 58-14 | 47-5 | | |
| 645 | 59-16 | 48-14 | | |
| 646 | 77-14 | 76-14 | | |
| 647 | 85-14 | 86-14 | | |
| 648 | 87-14 | 88-14 | | |
| 649 | 89-14 | 90-14 | | |
| 650 | 82-4 | 82-6 | | |
| 651 | 82-6 | 82-14 | | |
| 652 | 37-4 | 37-7 | | |
| 653 | 37-7 | 37-10 | | |
| 654 | 74-14 | 81-5 | | |
| 655 | 23-10 | 23-14 | | |
| 656 | 30-10 | 30-14 | | |
| 657 | 103-2 | 103-4 | | |
| 658 | 50-14 | 51-14 | | |
| 659 | 21-8 | 127-9 | | |
| 660 | 127-10 | 21-1 | | |
| 661 | 21-1 | 12-4 | | |
| 662 | 82-8 | 52-9 | | |
| 663 | 52-10 | 52-12 | | |
| 664 | 3-8 | 13-3 | | |
| 665 | 3-14 | 13-2 | | |
| 666 | 52-8 | 52-11 | | |
| 667 | 11-10 | 3-12 | | |
| 668 | 3-13 | 11-9 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 669 | 11-9 | 13-4 | #30AWG KYNAR-UL #1422-9 | |
| 670 | 11-10 | 74-13 | | |
| 671 | 74-11 | 80-15 | | |
| 672 | 13-4 | 91-14 | | |
| 673 | 91-8 | 80-15 | | |
| 674 | 52-11 | 94-1 | | |
| 675 | 116-1 | 125-1 | | |
| 676 | 31-9 | 99-5 | | |
| 677 | 99-5 | 114-12 | | |
| 678 | 11-5 | 3-10 | | |
| 679 | 3-11 | 11-4 | | |
| 680 | 11-4 | 23-12 | | |
| 681 | 58-5 | 58-9 | | |
| 682 | 80-26 | 69-5 | | |
| 683 | 69-5 | 68-5 | | |
| 684 | 68-5 | 67-5 | | |
| 685 | 67-5 | 66-5 | | |
| 686 | 11-5 | 63-5 | | |
| 687 | 63-5 | 62-5 | | |
| 688 | 62-5 | 61-5 | | |
| 689 | 61-5 | 60-5 | | |
| 690 | 60-5 | 66-5 | | |
| 691 | 58-9 | 2-12 | | |
| 692 | 2-14 | 129-6 | | |
| 693 | 111-4 | 129-14 | | |
| 694 | 121-8 | 129-1 | | |
| 695 | 2-5 | 4-7 | | |
| 696 | 2-6 | 4-8 | | |
| 697 | 58-6 | 58-8 | #30AWG KYNAR-UL #1422-9 | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 698 | 15-11 | 26-10 | #30AWG KYNAR-UL #1422-9 | |
| 699 | 58-7 | 48-7 | | |
| 700 | 58-14 | 48-14 | | |
| 701 | 44-10 | 98-10 | | |
| 702 | 92-2 | 54-8 | | |
| 703 | | | | |
| 704 | 92-8 | 117-5 | | |
| 705 | 24-5 | 24-11 | | |
| 706 | 24-13 | 26-13 | | |
| 707 | 24-4 | 13-14 | | |
| 708 | 24-12 | 48-11 | | |
| 709 | 53-4 | 48-13 | | |
| 710 | 48-12 | 48-2 | | |
| 711 | 108-13 | 59-14 | | |
| 712 | 26-5 | 110-13 | | |
| 713 | 82-12 | 98-5 | | |
| 714 | 52-3 | 44-13 | | |
| 715 | 52-1 | 46-1 | | |
| 716 | 39-1 | 27-6 | | |
| 717 | 39-4 | 27-8 | | |
| 718 | 39-9 | 28-6 | | |
| 719 | 39-12 | 28-8 | | |
| 720 | 40-1 | 29-6 | | |
| 721 | 40-4 | 29-9 | | |
| 722 | 40-9 | 30-6 | | |
| 723 | 27-4 | 27-10 | | |
| 724 | 27-10 | 27-14 | | |
| 725 | 28-4 | 28-10 | | |
| 726 | 28-10 | 28-14 | #30AWG KYNAR-UL #1422-9 | |

# WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 727 | 29-4 | 29-13 | #30AWG KYNAR-UL #1422-9 | |
| 728 | 30-4 | 30-10 | | |
| 729 | 46-2 | 100-8 | | |
| 730 | 27-1 | 107-6 | | |
| 731 | 107-5 | 45-6 | | |
| 732 | 58-8 | 2-13 | | |
| 733 | 45-4 | 111-8 | | |
| 734 | 50-13 | 88-1 | | |
| 735 | 50-10 | 88-4 | | |
| 736 | 50-5 | 88-9 | | |
| 737 | 50-2 | 89-1 | | |
| 738 | 51-5 | 89-4 | | |
| 739 | 51-13 | 84-1 | | |
| 740 | 51-10 | 101-4 | | |
| 741 | 78-8 | 51-5 | | |
| 742 | 50-13 | 78-2 | | |
| 743 | 78-1 | 86-13 | | |
| 744 | 88-5 | 78-4 | | |
| 745 | 78-3 | 86-2 | | |
| 746 | 86-4 | 107-10 | | |
| 747 | 76-6 | 107-11 | | |
| 748 | 89-2 | 78-6 | | |
| 749 | 76-8 | 86-1 | | |
| 750 | 51-10 | 78-10 | | |
| 751 | 77-6 | 78-11 | | |
| 752 | 77-1 | 84-5 | | |
| 753 | 84-2 | 77-2 | | |
| 754 | 77-2 | 51-2 | | |
| 755 | 84-1 | 78-12 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 756 | 77-4 | 84-4 | #30AWG KYNAR-UL #1422-9 | |
| 757 | 84-13 | 76-10 | | |
| 758 | 45-4 | 92-6 | | |
| 759 | 59-1 | 43-13 | | |
| 760 | 59-5 | 96-2 | | |
| 761 | 59-9 | 96-5 | | |
| 762 | 95-1 | 59-11 | | |
| 763 | 32-4 | 48-5 | | |
| 764 | 32-6 | 33-4 | | |
| 765 | 35-2 | 32-13 | | |
| 766 | 43-8 | 32-11 | | |
| 767 | 43-11 | 128-9 | | |
| 768 | 44-11 | 92-14 | | |
| 769 | 43-13 | 42-11 | | |
| 770 | 41-12 | 59-4 | | |
| 771 | 105-5 | 96-2 | | |
| 772 | 37-2 | 43-10 | | |
| 773 | 41-13 | 96-8 | | |
| 774 | 97-2 | 105-6 | | |
| 775 | 59-6 | 123-8 | | |
| 776 | 96-9 | 123-10 | | |
| 777 | 59-7 | 123-11 | | |
| 778 | 97-9 | 123-13 | | |
| 779 | 96-5 | 124-11 | | |
| 780 | 97-3 | 124-10 | | |
| 781 | 95-1 | 124-13 | | |
| 782 | 101-5 | 124-12 | | |
| 783 | 103-4 | 103-10 | | |
| 784 | 37-12 | 103-7 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 785 | 37-3 | 108-9 | #30AWG KYNAR-UL #1422-9 | |
| 786 | 52-8 | 103-5 | | |
| 787 | 92-6 | 103-6 | | |
| 788 | 103-7 | 116-12 | | |
| 789 | 116-11 | 127-10 | | |
| 790 | 109-3 | 116-13 | | |
| 791 | 31-11 | 53-9 | | |
| 792 | 53-1 | 53-10 | | |
| 793 | 40-12 | 53-8 | | |
| 794 | 93-14 | 101-6 | | |
| 795 | 101-6 | 107-13 | | |
| 796 | 93-3 | 107-12 | | |
| 797 | 93-12 | 101-9 | | |
| 798 | 81-16 | 124-13 | | |
| 799 | 107-8 | 108-2 | | |
| 800 | 112-1 | 107-9 | | |
| 801 | 43-12 | 116-4 | | |
| 802 | 45-11 | 59-11 | | |
| 803 | 45-9 | 59-12 | | |
| 804 | 108-5 | 108-14 | | |
| 805 | 112-8 | 108-4 | | |
| 806 | 27-5 | 31-10 | | |
| 807 | 45-5 | 43-4 | | |
| 808 | 56-1 | 103-8 | | |
| 809 | 92-1 | 92-5 | | |
| 810 | 103-5 | 92-1 | | |
| 811 | 37-3 | 41-9 | | |
| 812 | 41-10 | 42-3 | | |
| 813 | 37-13 | 41-8 | #30AWG KYNAR-UL #1422-9 | |

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 814 | 37-13 | 21-11 | #30AWG KYNAR-UL #1422-9 | |
| 815 | 42-1 | 59-3 | | |
| 816 | 42-2 | 97-8 | | |
| 817 | 2-11 | 129-11 | | |
| 818 | TP-43 | 37-12 | | |
| 819 | 21-9 | 92-13 | | |
| 820 | 38-12 | 127-8 | | |
| 821 | 38-1 | 43-4 | | |
| 822 | 38-2 | 53-10 | | |
| 823 | 38-13 | 26-8 | | |
| 824 | 45-5 | 54-8 | | |
| 825 | 38-13 | 53-12 | | |
| 826 | 44-4 | 38-3 | | |
| 827 | 38-6 | 38-9 | | |
| 828 | 38-8 | 21-5 | | |
| 829 | 128-14 | 23-5 | | |
| 830 | 23-5 | 57-1 | | |
| 831 | 114-13 | 57-5 | | |
| 832 | 57-6 | 52-2 | | |
| 833 | 103-6 | 95-2 | | |
| 834 | 22-6 | 57-9 | | |
| 835 | 118-2 | 117-12 | | |
| 836 | 57-8 | 57-12 | | |
| 837 | 57-13 | TP-43 | | |
| 838 | 57-11 | 20-3 | | |
| 839 | 57-11 | 33-3 | | |
| 840 | 124-3 | 103-14 | | |
| 841 | 118-6 | 116-5 | | |
| 842 | 118-1 | 45-8 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 843 | 118-4 | 124-3 | #30AWG KYNAR-UL #1422-9 | |
| 844 | 118-5 | 123-5 | | |
| 845 | 57-5 | 38-4 | | |
| 846 | 117-13 | 116-3 | | |
| 847 | 123-5 | 103-12 | | |
| 848 | 129-7 | 122-7 | | |
| 849 | 129-5 | 122-7 | | |
| 850 | 108-10 | 81-16 | | |
| 851 | 37-1 | 54-5 | | |
| 852 | 12-2 | 52-13 | | |
| 853 | 2-4 | 10-9 | | |
| 854 | 93-1 | 94-12 | | |
| 855 | 103-1 | 93-1 | | |
| 856 | 117-11 | TP-17 | | |
| 857 | 126-7 | 127-7 | | |
| 858 | 127-7 | 118-7 | | |
| 859 | 126-14 | 127-14 | | |
| 860 | 127-14 | 118-14 | | |
| 861 | 93-2 | 93-4 | | |
| 862 | 121-13 | 58-1 | | |
| 863 | 58-1 | 58-2 | | |
| 864 | 58-2 | 58-3 | | |
| 865 | 58-3 | 58-4 | | |
| 866 | 58-4 | 58-10 | | |
| 867 | 58-10 | 58-11 | | |
| 868 | 58-11 | 58-12 | | |
| 869 | 58-12 | 58-13 | | |
| 870 | 118-8 | 100-9 | | |
| 871 | 118-8 | 44-10 | #30AWG KYNAR-UL #1422-9 | |

## WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 872 | 115-11 | TP-1 | #30AWG KYNAR-UL #1422-9 | |
| 873 | 54-13 | TP-2 | | |
| 874 | 98-11 | TP-3 | | |
| 875 | 81-1 | TP-4 | | |
| 876 | 54-6 | TP-5 | | |
| 877 | 30-9 | TP-6 | | |
| 878 | 48-12 | TP-7 | | |
| 879 | 116-10 | TP-8 | | |
| 880 | 43-11 | TP-9 | | |
| 881 | 43-12 | TP-10 | | |
| 882 | 26-9 | TP-11 | | |
| 883 | 125-12 | TP-12 | | |
| 884 | 125-9 | TP-13 | | |
| 885 | 37-9 | TP-14 | | |
| 886 | 52-1 | TP-15 | | |
| 887 | 92-7 | TP-16 | | |
| 888 | 94-9 | TP-17 | | |
| 889 | 114-5 | TP-18 | | |
| 890 | 82-7 | TP-19 | | |
| 891 | 107-9 | TP-20 | | |
| 892 | 112-9 | TP-21 | | |
| 893 | 108-4 | TP-22 | | |
| 894 | 45-9 | TP-23 | | |
| 895 | 101-8 | TP-24 | | |
| 896 | 59-1 | TP-25 | | |
| 897 | 59-2 | TP-26 | | |
| 898 | 59-3 | TP-27 | | |
| 899 | 59-4 | TP-28 | | |
| 900 | 59-5 | TP-29 | #30AWG KYNAR-UL #1422-9 | |

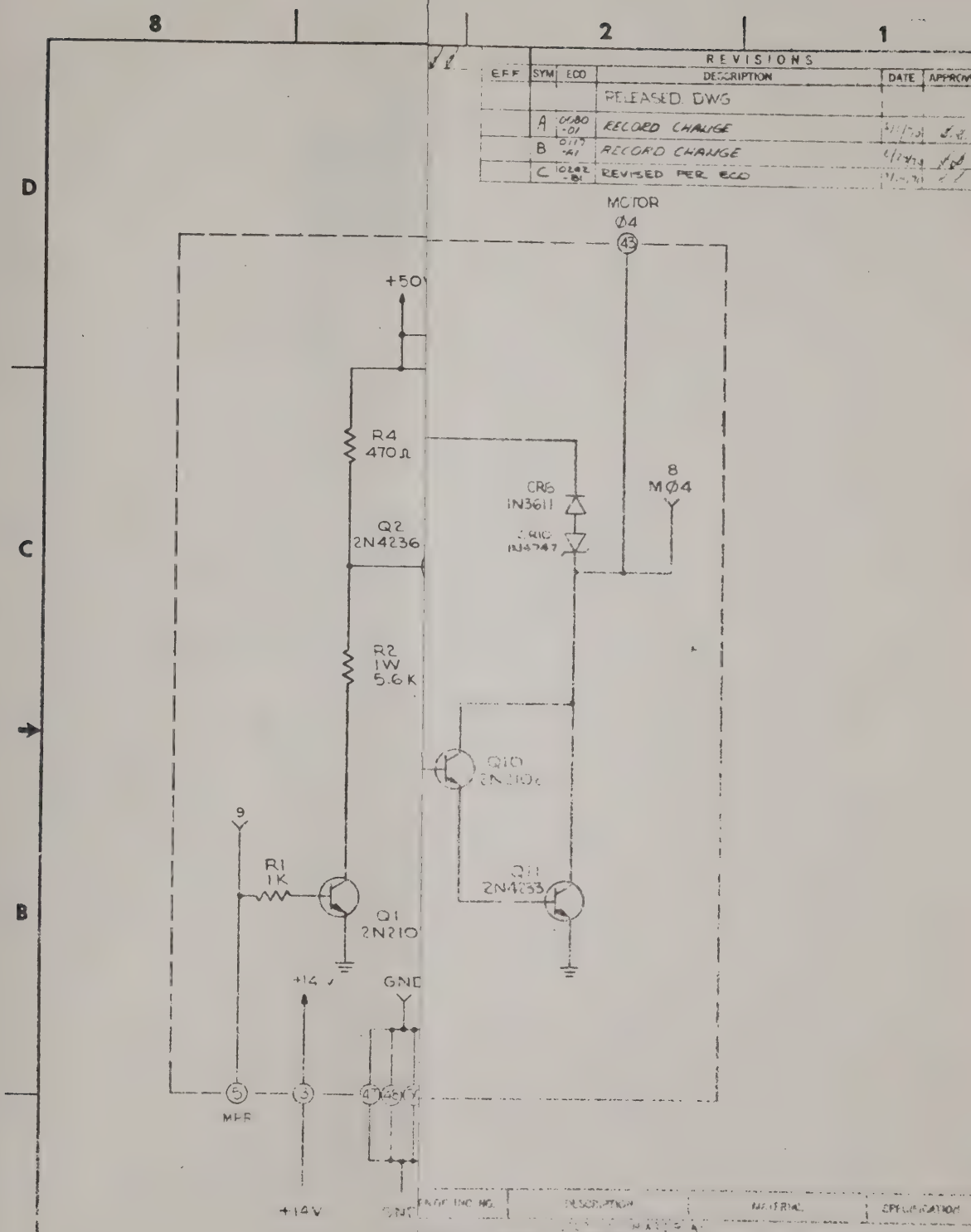
WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 901 | 59-6 | TP-30 | #30AWG KYNAR-UL #1422-9 | |
| 902 | 59-7 | TP-31 | " | |
| 903 | 59-9 | TP-32 | " | |
| 904 | 59-10 | TP-33 | " | |
| 905 | 45-10 | TP-34 | " | |
| 906 | 78-2 | TP-35 | " | |
| 907 | 78-4 | TP-36 | " | |
| 908 | 107-10 | TP-37 | " | |
| 909 | 78-6 | TP-38 | " | |
| 910 | 78-8 | TP-39 | " | |
| 911 | 76-12 | TP-40 | " | |
| 912 | 78-12 | TP-41 | " | |
| 913 | 78-10 | TP-42 | " | |
| 914 | TP-45 | 24-1 | " | |
| 915 | 56-5 | TP-44 | " | |
| 916 | 103-9 | TP-45 | " | |
| 917 | 100-8 | TP-46 | " | |
| 918 | 31-10 | TP-47 | " | |
| 919 | 27-9 | TP-48 | " | |
| 920 | 28-5 | TP-49 | " | |
| 921 | 28-9 | TP-50 | " | |
| 922 | 29-5 | TP-51 | " | |
| 923 | 29-9 | TP-52 | " | |
| 924 | 30-5 | TP-53 | " | |
| 925 | 31-11 | TP-54 | " | |
| 926 | 116-11 | TP-55 | " | |
| 927 | 77-11 | TP-56 | " | |
| 928 | 33-1 | TP-57 | " | |
| 929 | 32-5 | TP-58 | #30AWG KYNAR-UL #1422-9 | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 930 | 33-10 | TP-59 | #30AWG KYNAR-UL #1422-9 | |
| 931 | 33-13 | TP-60 | | |
| 932 | 20-10 | TP-61 | | |
| 933 | 114-9 | TP-62 | | |
| 934 | 114-12 | TP-63 | | |
| 935 | 10-8 | TP-64 | | |
| 936 | 55-8 | TP-65 | | |
| 937 | 44-11 | TP-66 | | |
| 938 | 3-12 | TP-67 | | |
| 939 | | | | |
| 940 | 5 14 | TP-69 | | |
| 941 | 5-7 | TP-70 | | |
| 942 | 107-3 | 23-4 | | |
| 943 | 23-7 | 23-11 | | |
| 944 | 2-14 | GROUND PLANE | | CUT ETCH |
| 945 | | | | |
| 946 | 42-12 | 100-5 | | |
| 947 | 118-9 | 118-10 | | |
| 948 | 118-10 | 118-12 | | |
| 949 | 118-12 | 118-13 | | |
| 950 | | | | |
| 951 | 117-2 | 117-13 | | |
| 952 | 95-3 | 95-4 | | |
| 953 | 95-4 | 95-5 | | |
| 954 | TP-6 | 95-9 | | |
| 955 | 95-9 | 95-10 | | |
| 956 | 95-6 | 51-1 | | |
| 957 | 95-8 | 128-13 | | |
| 958 | | | #30AWG KYNAR-UL #1422-9 | |


8
2
1
D
C
B
A
REVISIONS
REF
SYM
ECO
DESCRIPTION
DATE
RELEASED DWG
RECORD CHANGE
RECORD CHANGE
REVISED PER ECO
MOTOR
Ø4
43
+50
R4
470Ω
CR6
1N3611
8
MØ4
Q2
2N4236
R2
1W
5.6K
Q10
Q11
2N4233
9
R1
1K
Q1
+14 V
GND
5
MFR
3
+14V
SYMBOL INDICATES TEST POINT
LAST REF DESIGNATIONS
RESISTORS ARE
DIODES

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

WIRE LIST FOR: TT-649/UY

| WIRE No. | FROM | TO | WIRE DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 930 | 33-10 | TP-59 | #30AWG KYNAR-UL #1422-9 | |
| 931 | 33-13 | TP-60 | | |
| 932 | 20-10 | TP-61 | | |
| 933 | 114-9 | TP-62 | | |
| 934 | 114-12 | TP-63 | | |
| 935 | 10-8 | TP-64 | | |
| 936 | 55-8 | TP-65 | | |
| 937 | 44-11 | TP-66 | | |
| 938 | 3-12 | TP-67 | | |
| 939 | | | | |
| 940 | 5 14 | TP-69 | | |
| 941 | 5-7 | TP-70 | | |
| 942 | 107-3 | 23-4 | | |
| 943 | 23-7 | 23-11 | | |
| 944 | 2-14 | GROUND PLANE | | CUT ETCH |
| 945 | | | | |
| 946 | 42-12 | 100-5 | | |
| 947 | 118-9 | 118-10 | | |
| 948 | 118-10 | 118-12 | | |
| 949 | 118-12 | 118-13 | | |
| 950 | | | | |
| 951 | 117-2 | 117-13 | | |
| 952 | 95-3 | 95-4 | | |
| 953 | 95-4 | 95-5 | | |
| 954 | TP-6 | 95-9 | | |
| 955 | 95-9 | 95-10 | | |
| 956 | 95-6 | 51-1 | | |
| 957 | 95-8 | 128-13 | | |
| 958 | | | #30AWG KYNAR-UL #1422-9 | |

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| EFF | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED DWG | | |
| | A | CL80-01 | RECORD CHANGE | | |
| | B | CL17-A1 | RECORD CHANGE | | |
| | C | CL82-B1 | REVISED PER ECO | | |

D RECORD CHANGE SEE ECO

MOTOR COMMON

MOTOR Ø1

MOTOR Ø2

MOTOR Ø3

MOTOR Ø4

+50V +50 +14 +14V 10 MC

CR1 IN4721

CR2 IN4721

R4 470Ω R5 100Ω

Q2 2N4236 Q3 2N3792

R2 1W 5.6K R6 22K

CR3 IN3611 CR7 IN4747 5 MØ1

CR4 IN3611 CR8 IN4747 6 MØ2

CR5 IN3611 CR9 IN4747 7 MØ3

CR6 IN3611 CR10 IN4747 8 MØ4

R7 560Ω Q4 2N2102 Q5 2N4233

R8 560Ω Q6 2N2102 Q7 2N4233

R9 560Ω Q8 2N2102 Q9 2N4233

R10 560Ω Q10 2N2102 Q11 2N4233

9 R1 1K Q1 2N2102

4 LØ1 (TYP)

3 LØ2

2 LØ3

1 LØ4

+14V GND +50V

5 MFF 3 47 48 50 49 1 2 11 Ø1 LOGIC (LØ1) 41 ØZ LOGIC (LØ2) 39 Ø3 LOGIC (LØ3) 45 Ø4 LOGIC (LØ4)

+14V GND +50V

⚠ SYMBOL INDICATES TEST POINT, TYPICAL WHERE SHOWN

2 LAST REF DESIGNATIONS ARE Q11 CR10, R10

2 RESISTORS ARE 1/4W, 5%.

1 DIODES SET THRU SRC ARE USED ON 400ASSY ONLY

NOTES: UNLESS OTHERWISE SPECIFIED

Furnished Under United States Government Contract No. [illegible] shall not be either released outside the Government or used [illegible] disclosed, wholly or in part, for manufacture or procurement, without the written permission of Electronics Corporation, except that it may be used or disclosed in overhaul work by or for the Government, where the use or disclosure is not otherwise reasonably available to enable timely performance of the work, or (ii) released to a foreign government or for the interest of the United States may required, provided that in the latter case no release, use, duplication or disclosure hereof shall be subject to any liability on the part of [illegible] shall be asserted on any [illegible] whole or in part.

| SYM | ITEM NO. | QTY REQD | DRAWING OR PART NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

ELECTRONICS CORPORATION

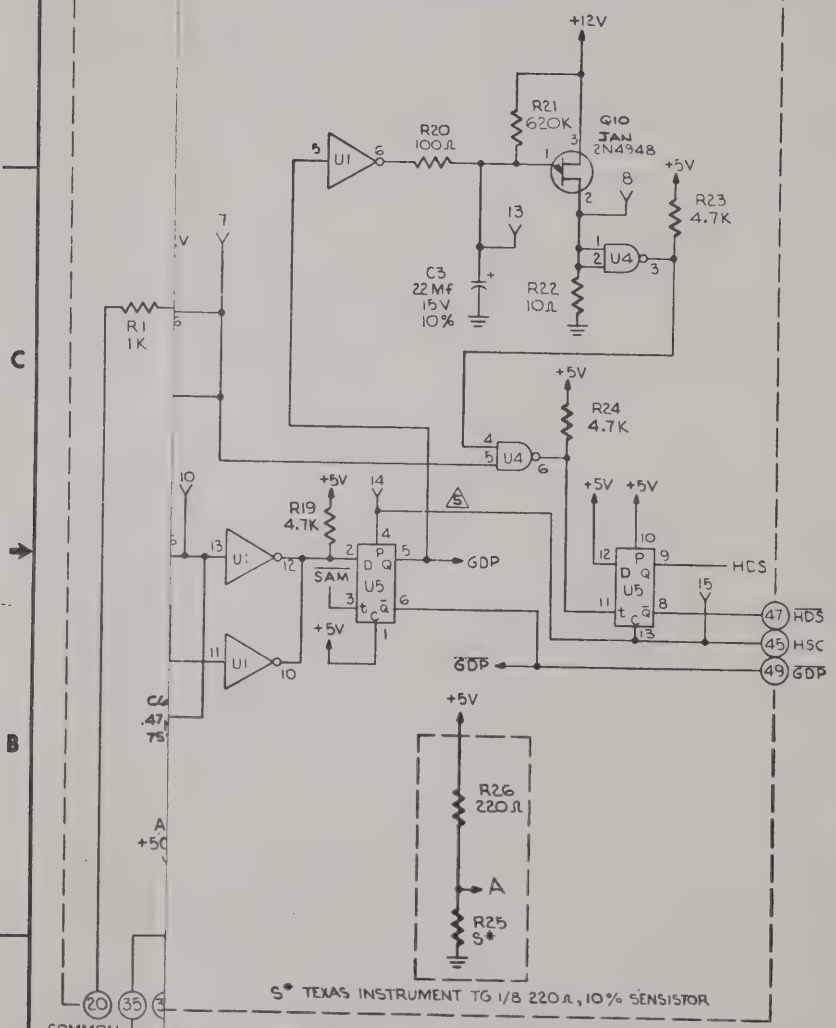
SCHEMATIC, MOTOR DRIVER P.C.B.

A B C D E F G H I J

FURNISHED UNDER UN
F30602-
SHALL NOT BE EITHER RE
DUPLICATED, OR DISCLOS
OR PROCUREMENT, WITHOU
CORPORATION, EXCEPT FO
BY OR FOR THE GOVERNME
IS NOT OTHERWISE REASO
MANCE OF THE WORK; OR
THE INTERESTS OF THE U
IN EITHER CASE THE RELE
OF SHALL BE SUBJECT TO
SHALL BE MARKED ON ANY

| | DATE | APPR |
|---|---|---|
| | 10/14/70 | |
| | 1/14/71 | |
| ECO | | |
| ECO | 11-24 | |

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED DWG. | 4/30/70 | |
| A | 0117 -01 | RECORD CHANGE | 6/1/71 | |
| B | 0133 -A1 | SEE ECO | 7/24/71 | |
| C | 0175 -B1 | SEE ECO | 9/30/71 | |




| ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|

LIST OF MATERIAL

NOTES:
1. RES
2. U5
U4
U2
U1
3. CA

| | |
|---|---|
| CONTRACT NO. | |
| DRAWN | Johnny Ray 4-2-70 |
| CHECK | 4-2-70 |
| ELEC. | |
| MECH | |
| DESIGN | |
| APPR. | |
| APPROVED | 4/30/70 |
| APPROVED | |

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA

SCHEMATIC, COMMON DRIVER P.C.B.

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | D | 101711-320 | G |

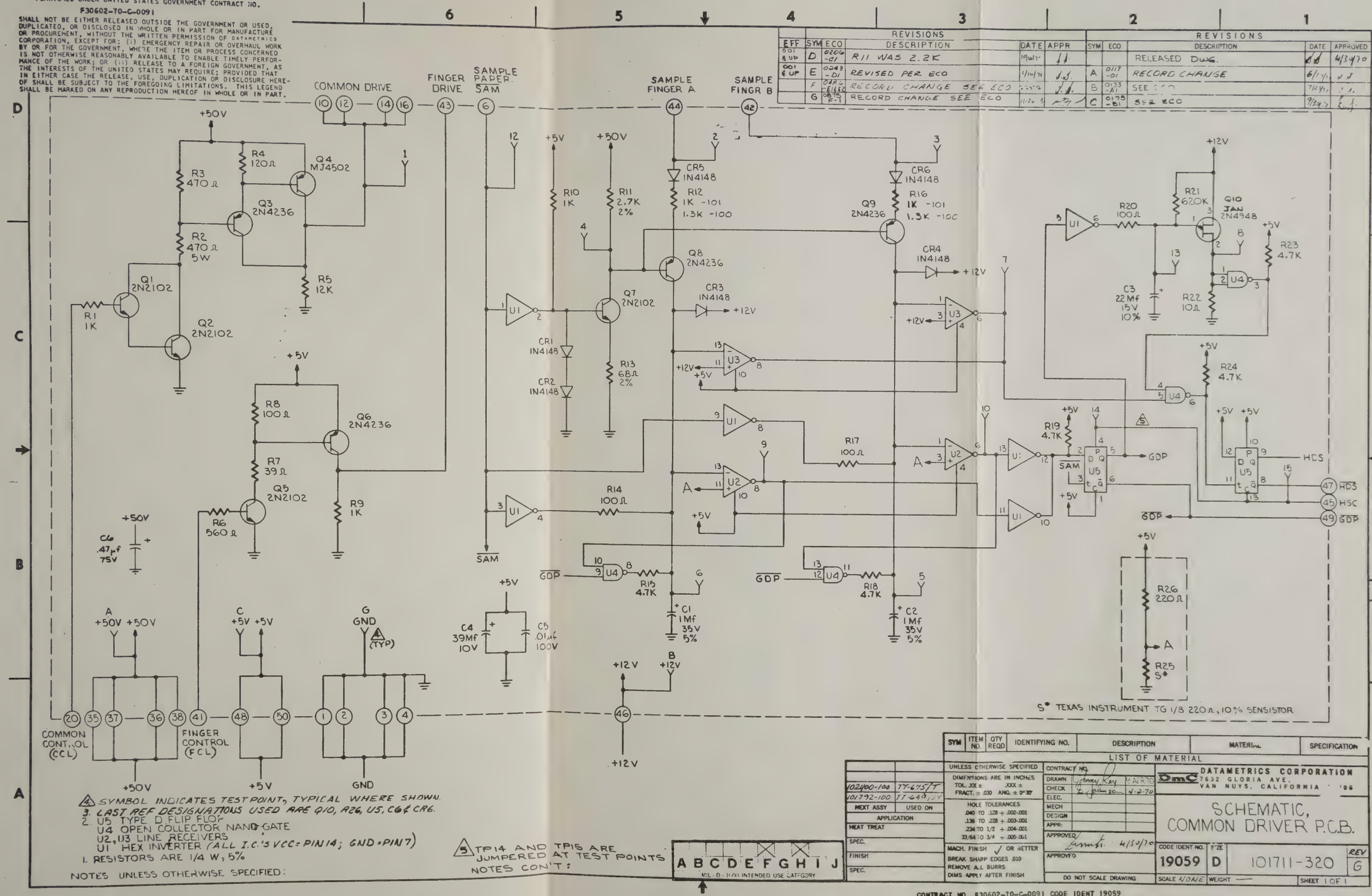
SCALE NONE | WEIGHT — | SHEET 1 OF 1

30602-70-C-0091 CODE IDENT 19059

101711-320

FURNISHED UNDER UNITED STATES GOVERNMENT CONTRACT NO.
F30602-70-C-0091
SHALL NOT BE EITHER RELEASED OUTSIDE THE GOVERNMENT OR USED, DUPLICATED, OR DISCLOSED IN WHOLE OR IN PART FOR MANUFACTURE OR PROCUREMENT, WITHOUT THE WRITTEN PERMISSION OF DATAMETRICS CORPORATION, EXCEPT FOR: (i) EMERGENCY REPAIR OR OVERHAUL WORK BY OR FOR THE GOVERNMENT, WHERE THE ITEM OR PROCESS CONCERNED IS NOT OTHERWISE REASONABLY AVAILABLE TO ENABLE TIMELY PERFORMANCE OF THE WORK; OR (ii) RELEASE TO A FOREIGN GOVERNMENT, AS THE INTERESTS OF THE UNITED STATES MAY REQUIRE; PROVIDED THAT IN EITHER CASE THE RELEASE, USE, DUPLICATION OR DISCLOSURE HEREOF SHALL BE SUBJECT TO THE FOREGOING LIMITATIONS. THIS LEGEND SHALL BE MARKED ON ANY REPRODUCTION HEREOF IN WHOLE OR IN PART.

| REVISIONS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EFF | SYM | ECO | DESCRIPTION | DATE | APPR | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| 001 & UP | D | 0206 -01 | R11 WAS 2.2K | 10/14/71 | | | | RELEASED DWG. | | 4/3/70 |
| 001 & UP | E | 0243 -01 | REVISED PER ECO | 1/14/71 | | A | 0117 -01 | RECORD CHANGE | 6/17/71 | |
| | F | 0286 -E1,E2 0315 F-1 | RECORD CHANGE SEE ECO | | | B | 0133 -A1 | SEE ECO | 7/24/71 | |
| | G | | RECORD CHANGE SEE ECO | 11-24-71 | | C | 0175 -B1 | SEE ECO | 9/29/71 | |




S* TEXAS INSTRUMENT TG 1/8 220Ω, 10% SENSISTOR

NOTES UNLESS OTHERWISE SPECIFIED:
1. RESISTORS ARE 1/4 W, 5%
2. U5 TYPE D FLIP FLOP
   U4 OPEN COLLECTOR NAND GATE
   U2, U3 LINE RECEIVERS
   U1 HEX INVERTER (ALL I.C.'S VCC=PIN 14; GND=PIN 7)
3. LAST REF DESIGNATIONS USED ARE Q10, R26, U5, C6 & CR6.
4. SYMBOL INDICATES TEST POINT, TYPICAL WHERE SHOWN.
5. TP14 AND TP15 ARE JUMPERED AT TEST POINTS

NOTES CON'T:

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

| | |
|---|---|
| 102100-100 | TT-675/T |
| 101792-100 | TT-649/JV |
| NEXT ASSY | USED ON |
| APPLICATION | |
| HEAT TREAT | |
| SPEC. | |
| FINISH | |
| SPEC. | |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL. .XX ± .XXX ±
FRACT. ± .030 ANG. ± 0°30'
HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001
MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO.
DRAWN Johnny Key 3-27-70
CHECK 4-2-70
ELEC.
MECH
DESIGN
APPR:
APPROVED 4/3/70
APPROVED

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA '86

# SCHEMATIC, COMMON DRIVER P.C.B.

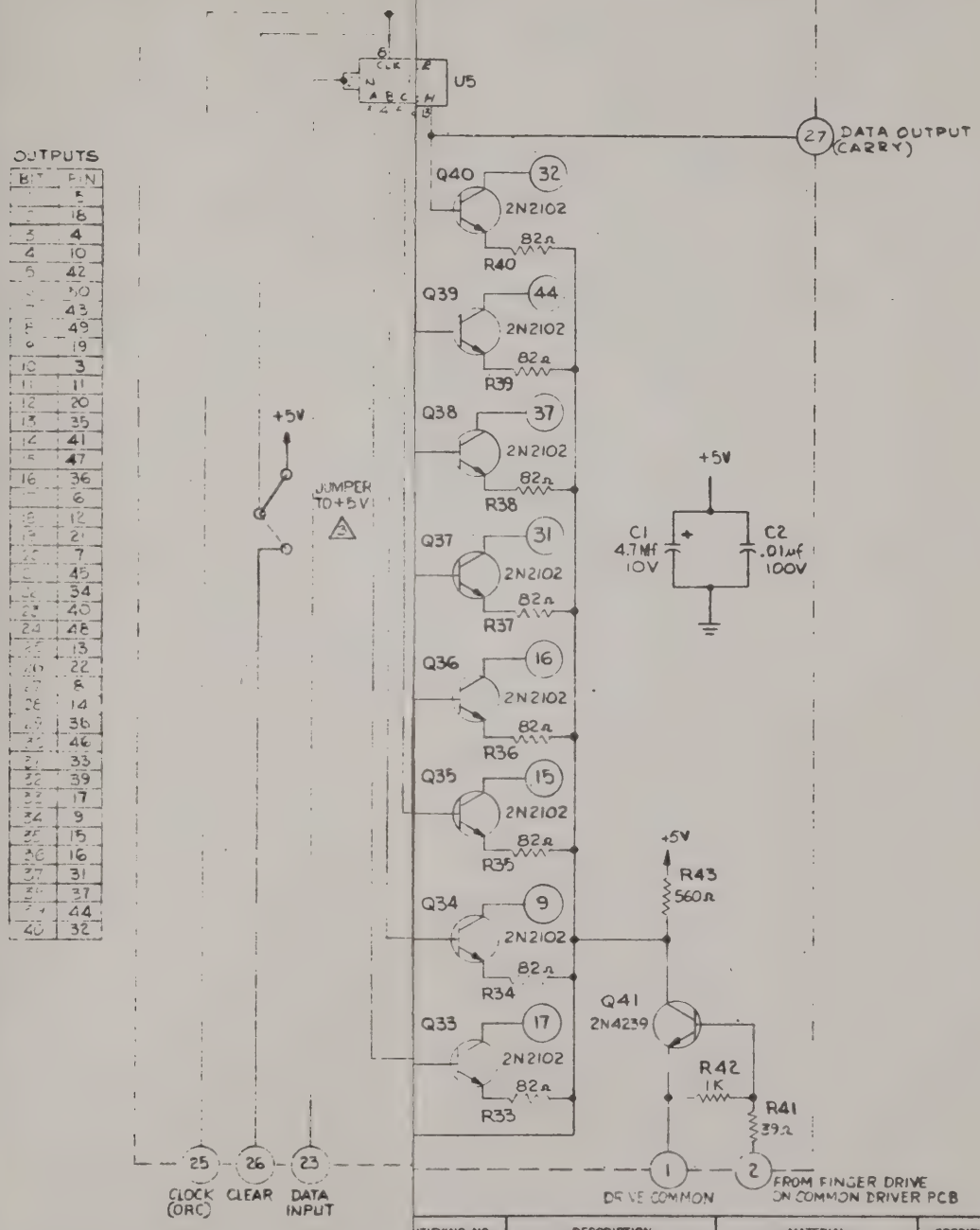
| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | D | 101711-320 | G |
| SCALE NONE | WEIGHT — | | SHEET 1 OF 1 |

MIL-D-1000 INTENDED USE CATEGORY: A B C D E F G H I J

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

101711-320 F

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | REL DWG | 4/30 | |




OUTPUTS

| BIT | PIN |
|---|---|
| 0 | 5 |
| 1 | 18 |
| 2 | 4 |
| 3 | 10 |
| 4 | 42 |
| 5 | 30 |
| 6 | 43 |
| 7 | 49 |
| 8 | 19 |
| 9 | 3 |
| 10 | 11 |
| 11 | 20 |
| 12 | 35 |
| 13 | 41 |
| 14 | 47 |
| 15 | 36 |
| 16 | 6 |
| 17 | 12 |
| 18 | 21 |
| 19 | 7 |
| 20 | 45 |
| 21 | 34 |
| 22 | 40 |
| 23 | 48 |
| 24 | 13 |
| 25 | 22 |
| 26 | 8 |
| 27 | 14 |
| 28 | 36 |
| 29 | 46 |
| 30 | 33 |
| 31 | 39 |
| 32 | 17 |
| 33 | 9 |
| 34 | 15 |
| 35 | 16 |
| 36 | 31 |
| 37 | 37 |
| 38 | 44 |
| 40 | 32 |

4. LAST REF DESIGNATIONS AR
3. JUMPER IS USED FOR EXT CLEAR LINE OR STRAP TO
2. U1 THRU U5 8 BIT SERIAL IN PARALLEL OUT SHIFT REGISTE
1. ALL RESISTORS ARE 1/4 W.

NOTES UNLESS OTHERWISE SPEC

| IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|

LIST OF MATERIAL

| | |
|---|---|
| CONTRACT NO | |
| DRAWN | |
| CHECK | |
| ELEC | |
| MECH | |
| DESIGN | |
| APPR | |
| APPROVED | 4/30 |
| APPROVED | |

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

SCHEMATIC,
FINGER DRIVER P.C.B

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | D | 101712-320 | C |

SCALE NONE | WEIGHT — | SHEET 1 OF 1

101712-320

CONTRACT NO. F30602-70 C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | REL DWG | 4/3/70 | |
| A | 0177-01 | RECORD CHANGE | 6/17/70 | |
| B | 0135-A1 | SEE ECO | 7/13/70 | |
| C | 0180 | RECORD CHANGE SEE ECO | | |

| OUTPUTS | |
|---|---|
| BIT | PIN |
| 1 | 5 |
| 2 | 16 |
| 3 | 4 |
| 4 | 10 |
| 5 | 42 |
| 6 | 30 |
| 7 | 43 |
| 8 | 49 |
| 9 | 19 |
| 10 | 3 |
| 11 | 11 |
| 12 | 20 |
| 13 | 35 |
| 14 | 41 |
| 15 | 47 |
| 16 | 36 |
| 17 | 6 |
| 18 | 12 |
| 19 | 2 |
| 20 | 7 |
| 21 | 45 |
| 22 | 34 |
| 23 | 40 |
| 24 | 48 |
| 25 | 33 |
| 26 | 39 |
| 27 | 17 |
| 28 | 9 |
| 29 | 15 |
| 30 | 16 |
| 31 | 31 |
| 32 | 37 |
| 33 | 44 |
| 34 | 32 |

U1 U2 U3 U4 U5 — 164 SHIFT REGISTER (CLK, CLR, N, A B C D E F G H)

Q8 Q7 Q6 Q5 Q4 Q3 Q2 Q1 — 2N2102 — R8 R7 R6 R5 R4 R3 R2 R1 — 82Ω

Q16 Q15 Q14 Q13 Q12 Q11 Q10 Q9 — 2N2102 — R16 R15 R14 R13 R12 R11 R10 R9 — 82Ω

Q24 Q23 Q22 Q21 Q20 Q19 Q18 Q17 — 2N2102 — R24 R23 R22 R21 R20 R19 R18 R17 — 82Ω

Q32 Q31 Q30 Q29 Q28 Q27 Q26 Q25 — 2N2102 — R32 R31 R30 R29 R28 R27 R26 R25 — 82Ω

Q40 Q39 Q38 Q37 Q36 Q35 Q34 Q33 — 2N2102 — R40 R39 R38 R37 R36 R35 R34 R33 — 82Ω

+5V — JUMPER TO +5V (3)

27 DATA OUTPUT (CARRY)

+5V — C1 4.7Mf 10V — C2 .01mf 100V

+5V — R43 560Ω — Q41 2N4239 — R42 1K — R41 39Ω

1 DRIVE COMMON

2 FROM FINGER DRIVE ON COMMON DRIVER PCB

25 CLOCK (ORC)

26 CLEAR

23 DATA INPUT

24 LOGIC GND

28 +5V

4 LAST REF DESIGNATIONS ARE U5, Q41, R43, C2

(3) JUMPER IS USED FOR EXTERNAL CONTROL OF CLEAR LINE OR STRAP TO +5 VOLTS

2. U1 THRU U5 8 BIT SERIAL IN PARALLEL OUT SHIFT REGISTER. (VCC = PIN 14; GND = PIN 7)

1. ALL RESISTORS ARE 1/4 W. 5%

NOTES UNLESS OTHERWISE SPECIFIED

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (1) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (II) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

A B C D E F G H I J
MIL D 1000 INTENDED USE CATEGORY

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

| | |
|---|---|
| NEXT ASSY | USED ON |
| APPLICATION | |
| HEAT TREAT | |
| SPEC. | |
| FINISH | |
| SPEC. | |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .010 .XXX ± .005
FRACT ± .030 ANG. ± 0°30'

HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO
DRAWN
CHECK
ELEC.
MECH
DESIGN
APPR
APPROVED
APPROVED

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

SCHEMATIC,
FINGER DRIVER P.C.B

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | D | 101712-320 | C |

SCALE NONE | WEIGHT — | SHEET 1 OF 1

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

101712-320

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| EFF | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED DWG | | |
| 001 UP | A | 0185 -01 | SEE ECO & MARKED PRINT | | |
| | B | 0240 A1 | RECORD CHANGE, SEE ECO | | |
| ALL | C | 0471 -B1 | SEE ECO & MARKED PRINT | | |
| SEE ECO | D | 0657 -C1 | SEE ECO | 9/17/ | |

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (1) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (2) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| | | | |
|---|---|---|---|
| | SOLDER, THI ALY | | QQ-S-571d |
| -4 | TAPE, LACING | | MIL-T-43435 |
| 22-BLK | INSULATION, SLEEVING | | MIL-I-23053/5 |
| 25036-45 | TERMINAL LUG | | |
| BLACK | WIRE, ELEC BLK TEFLON | | MIL-W-16878/4 |
| WHITE/RED | WIRE, EL ENG STRANDED WHITE/RED | | MIL-W-16878/4 |
| 37-330 | LAMP, 14V MINIATURE NO 330 | | G. ELEC. |
| | LAMP, ILLUMINATION NO 455 MOD 330 | | SLOAN CO |
| 754 | BRACKET, LAMP | | |
| BUYING NO | DESCRIPTION | MATERIAL | SPECIFICATION |

LIST OF MATERIAL

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

4554
LAMP BRACKET

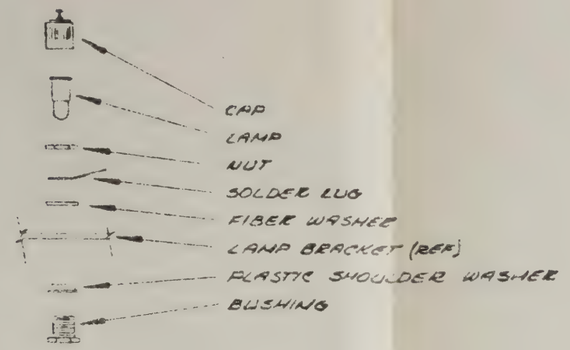
| SIZE | DRAWING NO | REV |
|---|---|---|
| D | 101755-100 | D |

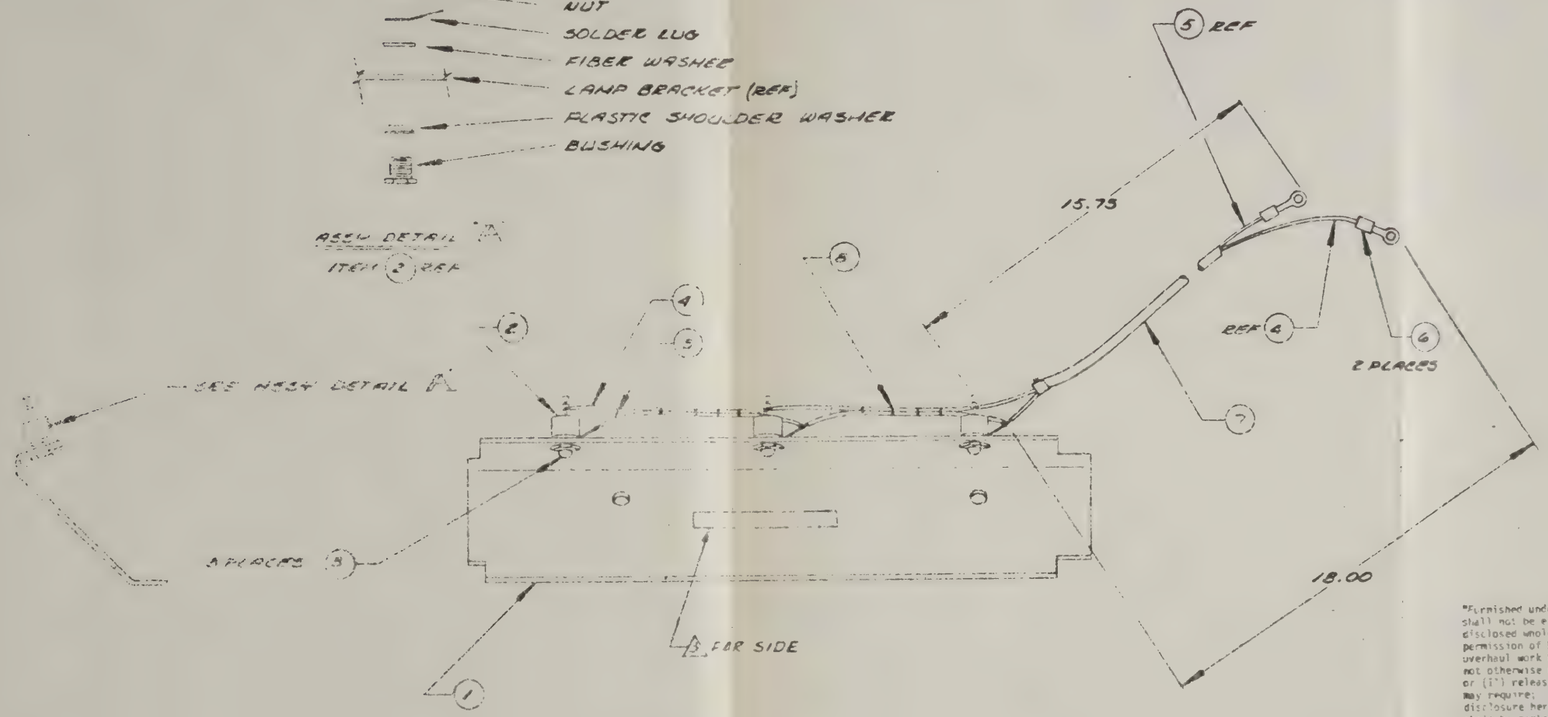
19059

SCALE 2/1 WEIGHT SHEET 1 OF 1

101755-100

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| EFF | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED DWG | | |
| 001 UP | A | 0185 -01 | SEE ECO & MARKED PRINT | | |
| | B | 0290 -A1 | RECORD CHANGE, SEE ECO | | |
| ALL | C | 3471 -B1 | SEE ECO & MARKED PRINT | | |
| SEE ECO | D | 0657 -C1 | SEE ECO | | |




"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (i) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (ii) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| SYM | ITEM NO. | QTY PER | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|
| | 9 | A/R | SW50LDR.HAND | SOLDER, TIN ALY | | QQ-S-571d |
| | 8 | A/R | T.B-4 | TAPE, LACING | | MIL T 43435 |
| | 7 | A/R | SCLI-.25-BLK | INSULATION, SLEEVING | | MIL I-23053/5 |
| | 6 | 2 | MS 25036-45 | TERMINAL LUG | | |
| | 5 | A/R | E-22 BLACK | WIRE, EL EQ, STRANDED WHITE TEFLON BLK. TEFLON | | MIL-W-16878/4 |
| | 4 | A/R | E 22-WH/RED | WIRE, EL EQ, STRANDED WHITE TEFLON | | MIL-W-16878/4 |
| | 3 | 3 | MS20-330 | LAMP, 14V. MINI-GRASS 110-330 | | G ELEC |
| | 2 | 3 | 9000-0001 | LAMP, ILLUMINATION NO.555 NUT-330 | | SLOAN CO |
| | 1 | 1 | NOTE 5 | BRACKET, LAMP | | |

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .02 .XXX ±
FRACT ± ANG ±
SURF FINISH 63 OR BETTER

CONTRACT NO

DRAWN
CHECK
DESIGN
APPVD
APPVD

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

4554
LAMP BRACKET

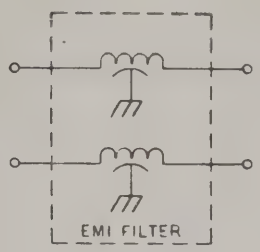
ORDER NO. 19059 | SIZE D | 101755-100 | REV D

SCALE

DO NOT SCALE DRAWING

101755-100

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| LTR | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED PER DWG | | |
| | A | 1044 | SEE ECO & 'C' FREE PRINT | | |
| | B | 1359 -A1 | RECORD CHANGE SEE ECO | | |




LOCATED ON CONNECTOR PANEL

TYP

TO J4-X

AC

S1

TO J4-W

THERMAL SWITCH

ASSY-100 ONLY

115 VAC±
60 TO 40

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (I) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (II) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| J4 | |
|---|---|
| -12V | J4-P |
| +5V | J4-H |
| .+5V | J4-J,K |
| +12V | J4-R |
| +14V | J4-N |
| +50V | J4-L,M |
| | J4-T SPARE |
| | J4-U SPARE |

| | |
|---|---|
| GND | J4-A |
| GND | J4-B |
| GND | J4-C,D |
| GND | J4-E,F |
| | J4-S |
| | J4-W AC |
| | J4-X AC |
| | J4-V SPARE |

7. REF DESIGNATION "BR" INDICATES BRIDGE RECTIFIER

6. LAST REF DESIGNATIONS ARE Q9, BR5, CR10, U1, R17, C15, T1, S1.

5 INDICATES TERMINAL CONNECTIONS ON THE P.C. BOARD.

4 TRANSFORMER SPEC SEE 101615-600

3 INDICATES LARGE ELECTROLYTIC CAN TYPE CAPACITORS.

2 ALL 1% RESISTORS ARE RN60 SERIES, 1/4 ALL OTHERS 1/4 WATT, 5% CARBON COMP.

1 DENOTES HEATSINK MOUNTING

NOTES: UNLESS OTHERWISE SPECIFIED

| IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|

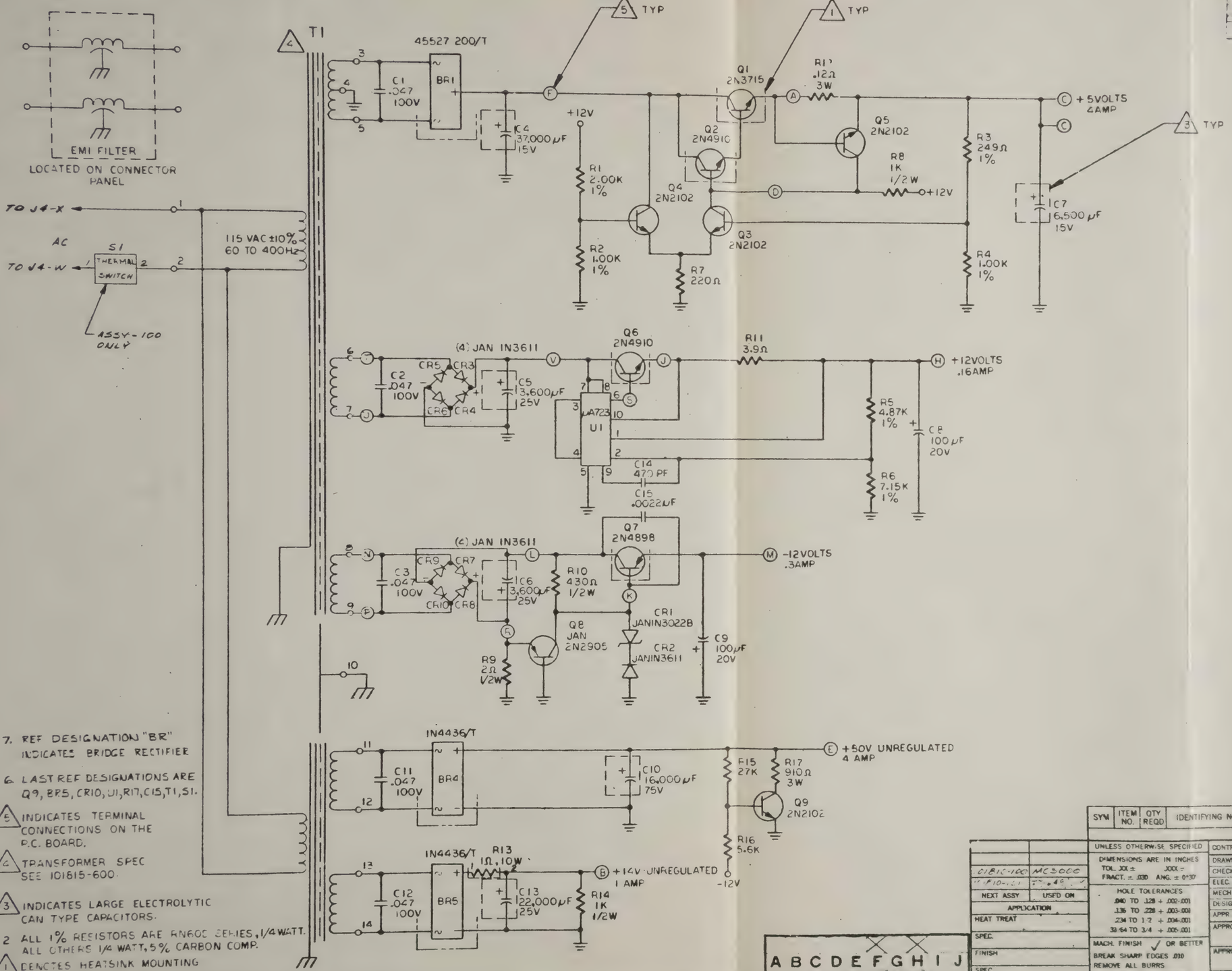
LIST OF MATERIAL

| | | | |
|---|---|---|---|
| CONTRACT NO. | | DATAMETRICS CORPORATION | |
| DRAWN | | 7632 GLORIA AVE. VAN NUYS, CALIFORNIA 91406 | |
| CHECK | | | |
| ELEC | | | |
| MECH | | | |
| DESIGN | | | |
| APPR | | | |
| APPROVED | | SCHEMATIC, POWER SUPPLY | |
| APPROVED | | CODE IDENT NO. 19059 | SIZE D |
| DO NOT SCALE DRAWING | | SCALE NONE | WEIGHT — |

101814-320 REV B

SHEET 1 OF 1

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059




7. REF DESIGNATION "BR" INDICATES BRIDGE RECTIFIER
6. LAST REF DESIGNATIONS ARE Q9, BR5, CR10, U1, R17, C15, T1, S1.
5. INDICATES TERMINAL CONNECTIONS ON THE P.C. BOARD.
4. TRANSFORMER SPEC SEE 101815-600.
3. INDICATES LARGE ELECTROLYTIC CAN TYPE CAPACITORS.
2. ALL 1% RESISTORS ARE RN60C SERIES, 1/4 WATT. ALL OTHERS 1/4 WATT, 5% CARBON COMP.
1. DENOTES HEATSINK MOUNTING

NOTES: UNLESS OTHERWISE SPECIFIED

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED PRODUCTION | 4/4/70 | J.K |
| | A | 4564-A1 | ADDED C15 .0022µF PER FIELD PRINT | 4/4/70 | J.K |
| | B | 4564-A1 | RECORD CHANGE SEE ECO | 4/4/70 | J.K |

"Furnished under United States Government Contract No. F30602-70-C-0091. This data shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (1) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (11) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

J4

| | |
|---|---|
| -12V | J4-P |
| +5V | J4-H |
| +5V | J4-J,K |
| +12V | J4-R |
| +14V | J4-N |
| +50V | J4-L,M |
| J4-T | SPARE |
| J4-U | SPARE |

| | |
|---|---|
| GND | J4-A |
| GND | J4-B |
| GND | J4-C,D |
| GND | J4-E,F |
| J4-S | |
| J4-W | AC |
| J4-X | AC |
| J4-V | SPARE |

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

| | |
|---|---|
| | |
| 01B1C-100 | MC3000 |
| 1P10-1.1 | 7.048 |
| NEXT ASSY | USED ON |
| APPLICATION | |
| HEAT TREAT | |
| SPEC. | |
| FINISH | |
| SPEC. | |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL. .XX ± .XXX ±
FRACT. ± .030 ANG. ± 0°30'
HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001
MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO.
DRAWN
CHECK
ELEC.
MECH
DESIGN
APPR
APPROVED
APPROVED
DO NOT SCALE DRAWING

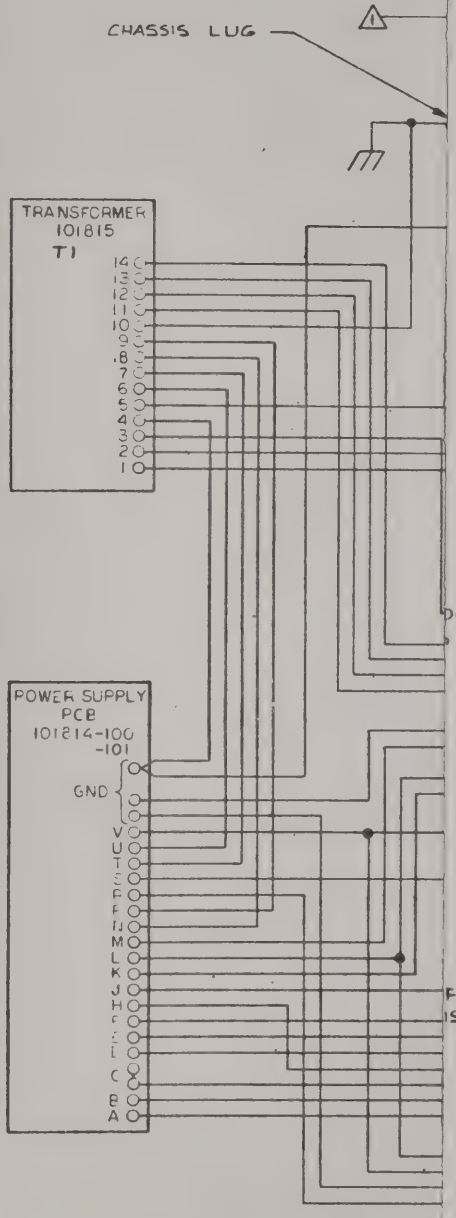
DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

SCHEMATIC, POWER SUPPLY

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | D | 101814-320 | B |
| SCALE NONE | WEIGHT — | SHEET 1 OF 1 | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| EFF | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED DWG | 11/11/70 | |
| -001 | A | 0250-01 | ADD NOTE ⚠1 PER ECO | 5/11/71 | |
| | B | 0475-A1 | RECORD CHANGE SEE ECO | 2/28/73 | |




"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (I) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (II) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

3. REF DESIGNATIONS "BR" DES
BRIDGE RECTIFIERS

2. REFERENCE WIRE LIST 10185

⚠1 ASSY 101851-861 DELETES THE T
AND LINE J4-W GOES DIRECTLY T

NOTES: UNLESS OTHERWISE SPEC

| IFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|

LIST OF MATERIAL

| | | |
|---|---|---|
| CONTRACT NO. | | |
| DRAWN | Gregory Kay | 11-11-70 |
| CHECK | [illegible] | 11-11-70 |
| ELEC. | [illegible] | 11-11-70 |
| MECH | | |
| DESIGN | | |
| APPR: | | |
| APPROVED | [illegible] | 11/11/70 |
| APPROVED | | |

DO NOT SCALE DRAWING

DmC DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

# INTERCONNECTION DIAGRAM, POWER SUPPLY

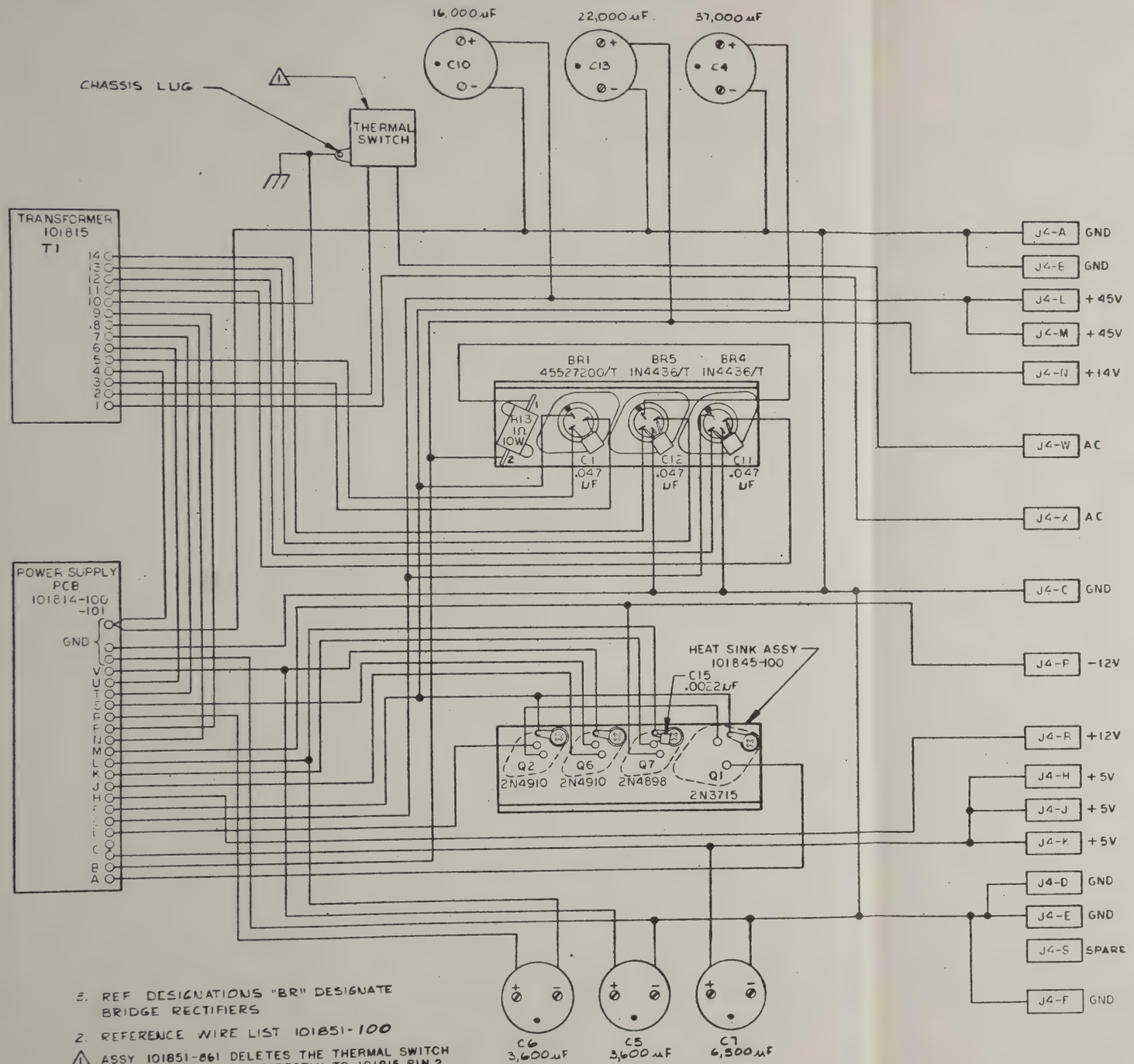
| CODE IDENT NO. | SIZE | | REV. |
|---|---|---|---|
| 19059 | D | 101851-320 | B |

SCALE 1.ONE | WEIGHT | SHEET 1 OF 1

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

101851-320 B

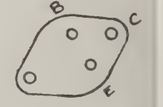
| REVISIONS | | | | | |
|---|---|---|---|---|---|
| EFF | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED DWG | 4/11/70 | |
| -001 | A | 0250-G1 | ADD NOTE ⚠ PER ECO | 5/1/70 | |
| | B | 0475-A1 | RECORD CHANGE SEE ECO | 7-29-70 | |




3. REF DESIGNATIONS "BR" DESIGNATE BRIDGE RECTIFIERS
2. REFERENCE WIRE LIST 101851-100
⚠1 ASSY 101851-861 DELETES THE THERMAL SWITCH AND LINE J4-W GOES DIRECTLY TO 101815 PIN 2.

NOTES: UNLESS OTHERWISE SPECIFIED.

TYPICAL VIEW OF "BR" BRIDGES




TYPICAL VIEW OF "Q" POWER TRANSISTORS

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (1) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (11) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

| | |
|---|---|
| 101851-10 | MC3000 |
| 101851-861 | TT-649/UV |
| NEXT ASSY | USED ON |
| APPLICATION | |
| HEAT TREAT | |
| SPEC. | |
| FINISH | |
| SPEC. | |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL. .XX ± .XXX ±
FRACT. ± .030 ANG. ± 0°30'
HOLE TOLERANCES
.040 TO .128 + .002-.001
.136 TO .228 + .003-.001
.234 TO 1/2 + .004-.001
33/64 TO 3/4 + .005-.001
MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

| | | |
|---|---|---|
| CONTRACT NO. | | |
| DRAWN | Catherine Key | 11-11-70 |
| CHECK | John Lee | 11-11-70 |
| ELEC. | John Lee | 11-11-70 |
| MECH | | |
| DESIGN | | |
| APPR: | | |
| APPROVED | Lee Lee | 11/11/70 |
| APPROVED | | |

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

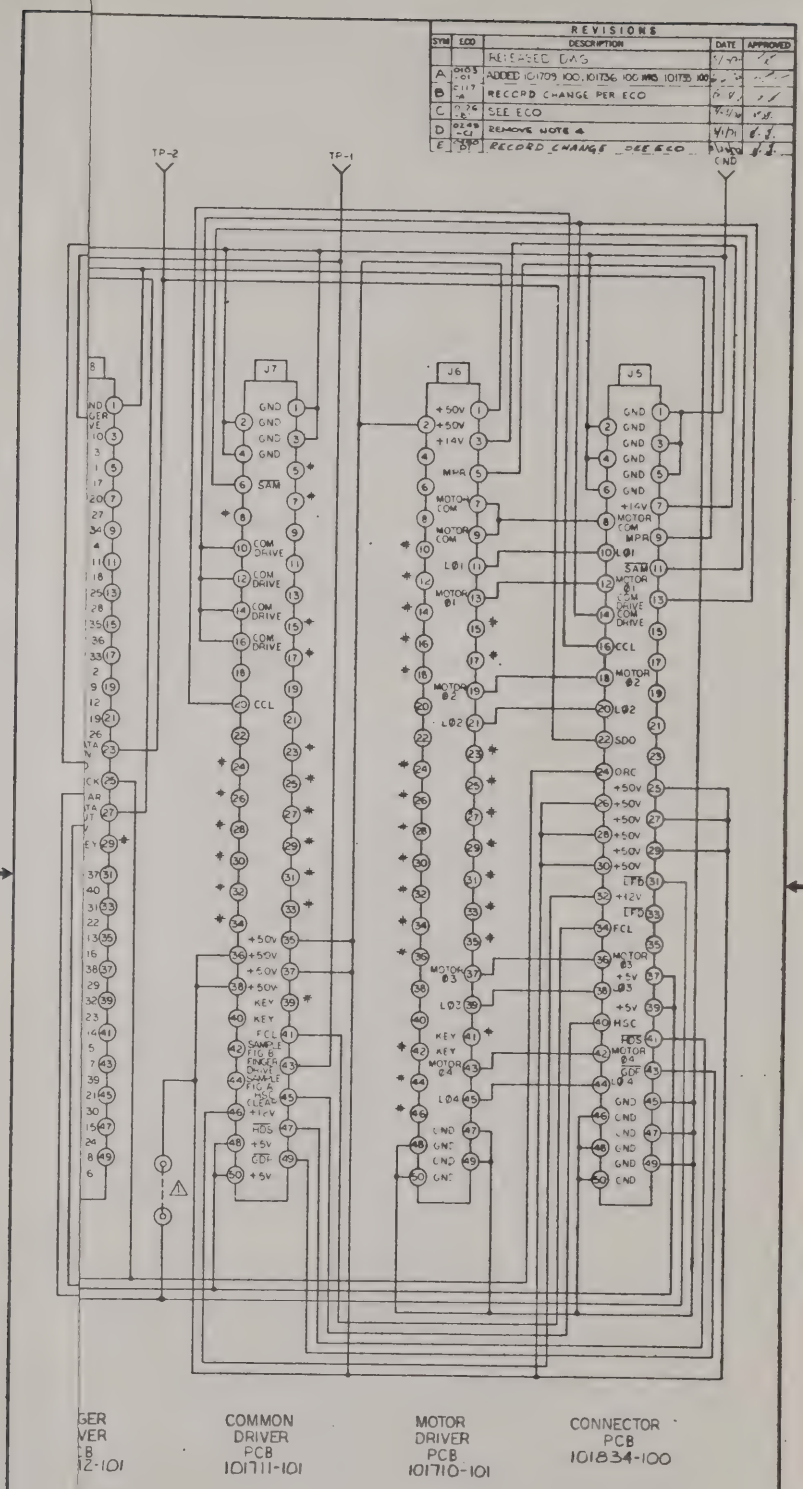
# INTERCONNECTION DIAGRAM, POWER SUPPLY

| CODE IDENT NO. | SIZE | | REV. |
|---|---|---|---|
| 19059 | D | 101851-320 | B |
| SCALE 1.0 1/2 | WEIGHT | SHEET 1 OF 1 | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

A B C D E F G H I J
M-L-D-1000 INTENDED USE CATEGORY

101851-320 B




| SYM | ITEM NO | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .030 .XXX ± .010
FRACT ± .030 ANG ± 0°30'

HOLE TOLERANCES
.000 TO .128 + .002-.000
.136 TO .228 + .003-.000
.234 TO 1/2 + .004-.000
33/64 TO 3/4 + .005-.000

MACH FINISH √ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO.
DRAWN
CHECK
ELEC.
MECH
DESIGN
APPR.
APPROVED
APPROVED
DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7433 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

# SCHEMATIC, MOTHER BOARD

CODE IDENT NO. 19059 | SIZE E | 101709-320 | REV E
SCALE NONE | WEIGHT — | SHEET 1 OF 1

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED PER ECO | 1/7/71 | |
| A | 69-55-CI | ADDED 101709-10C, 101736-10C WAS 101735-100 | 2/24/71 | |
| B | 71-17-CA | RECORD CHANGE PER ECO | 5/6/71 | |
| C | 71-76-CA | SEE ECO | 7/21/71 | |
| D | 72-49-CA | REMOVE NOTE 4 | 4/17/72 | |
| E | 73-80-CA | RECORD CHANGE - SEE ECO | 11/20/73 | |

TP-13 TP-12 TP-11 TP-10 TP-9 TP-8 TP-7 TP-6 TP-5 TP-4 TP-3 TP-2 TP-1 GND

J19 J18 J17 J16 J15 J14 J13 J12 J11 J10 J9 J8 J7 J6 J5

| SPARE | SPARE | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | FINGER DRIVER PCB 101712-101 | COMMON DRIVER PCB 101711-101 | MOTOR DRIVER PCB 101710-101 | CONNECTOR PCB 101834-100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

4. ON CONNECTOR J5, PIN NO'S 15, 17, 19, 21, 23, 31, 33 & 35 ARE USED FOR CONNECTIONS TO THE MAINTENANCE PANEL ASSY 101818-100 (REF DWG 101832-320)

3. SCHEMATIC IS LAYED OUT AS IF VIEWING NON-CONNECTOR SIDE (CIRCUIT SIDE) OF MOTHER P.C. BOARD, 101709-101.

2. FOR SIMPLICITY OF DWG. END RESULT CONNECTIONS ARE SHOWN ONLY. ACTUAL PRINTED CIRCUIT LAYOUT HAS UTILIZED SOME UNUSED PINS (MARKED BY *) FOR PASS-THRU OR FEED THRU POINTS.

⚠ IF CLEAR LINE TO SHIFT REGISTER IS NOT USED, THIS JUMPER IS MADE TO SUPPLY +5V TO THE DUMMY LOAD EXTENDER PCB (101714-100) WHEN IT IS USED

NOTES: UNLESS OTHERWISE SPECIFIED.

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for (1) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (11) release to a foreign government, as the interest of the United States may require. It is agreed that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

A B C D E F G H I J

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .030 .XXX ± .010
FRACT ± .030 ANG. ± 0°30'
HOLE TOLERANCES
.040 TO .138 +.002-.000
.139 TO .358 +.003-.000
.359 TO 1.0 +.004-.000
1.0+ TO 3.9 +.005-.000
MACH. FINISH √ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS. APPLY AFTER FINISH

NEXT ASSY | USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

CONTRACT NO.
DRAWN
CHECK
ENGR.
MECH.
DESIGN
APPR.
APPROVED
APPROVED
DO NOT SCALE DRAWING

DMC DATAMETRICS CORPORATION
7433 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

# SCHEMATIC, MOTHER BOARD

CODE IDENT NO. 19059 | SIZE E | 101709 - 320 | REV E
SCALE 4/SIZE | WEIGHT — | SHEET 1 OF 1

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED DWG | 4/1/ | [illegible] |
| A | [illegible] | RECORD CHANGE SEE ECO | 5/5/ | [illegible] |

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .XXX ±
FRACT ± .005 ANG ± 0°30'

HOLE TOLERANCES
.060 TO .128 +.002-.000
.136 TO .228 +.003-.000
.234 TO 1/2 +.004-.000
33/64 TO 3/4 +.005-.000

MACH FINISH √ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO.
DRAWN [illegible] 4 7 7
CHECK [illegible] 5-7-7
ELEC.
MECH
DESIGN
APPR.
APPROVED [illegible] 4/7/
APPROVED
DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7637 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

FUNCTIONAL BLOCK DIAGRAM

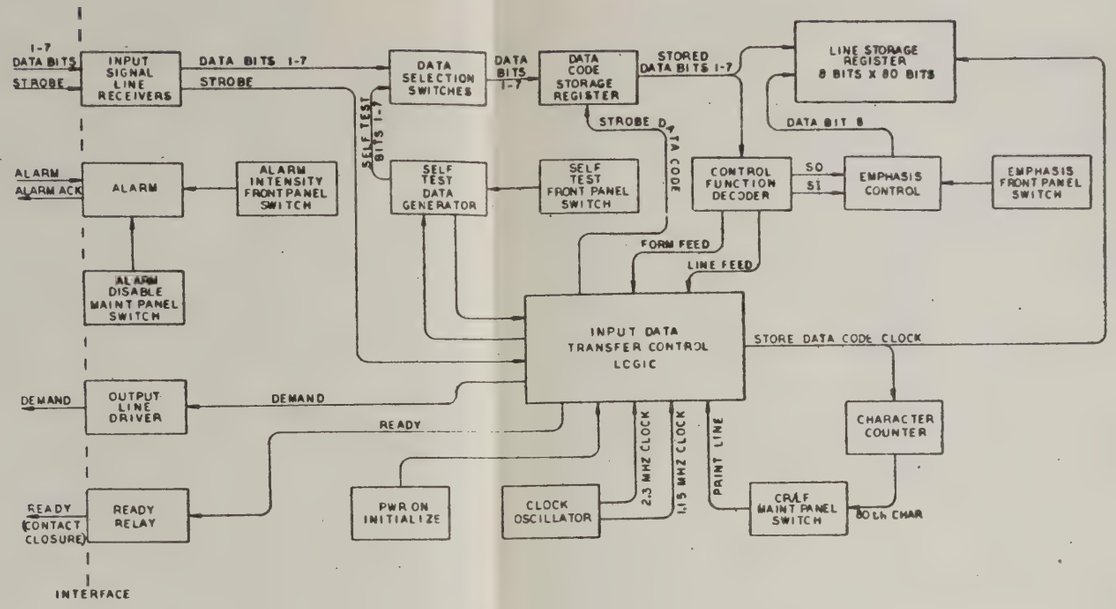
| NEXT ASSY | USED ON |
|---|---|
| APPLICATION | |
| HEAT TREAT | |
| FIN. | |
| FINISH | |
| MFG. | |

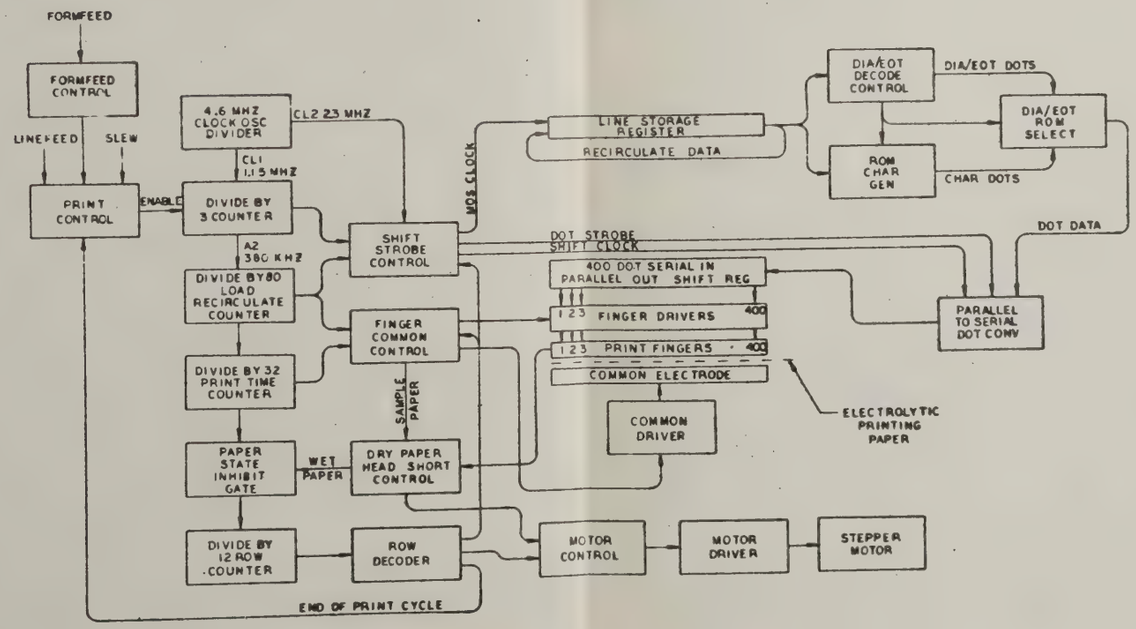
NOTES: UNLESS

| CODE IDENT NO. | SIZE | 101792-340 | REV |
|---|---|---|---|
| 19059 | E | | A |
| SCALE | WEIGHT | SHEET 1 OF 1 | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED DWG | 7/1/ | EJ |
| A | 2562 | RECORD CHANGE SEE ECO | 3/1/ | EJ |




NOTES: UNLESS OTHERWISE SPECIFIED

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .XXX ±
FRACT ± .005 ANG. ± 0°30'
HOLE TOLERANCES
.000 TO .128 + .002-.000
.129 TO .228 + .003-.000
.234 TO 1/2 + .004-.000
33/64 TO 3/4 + .005-.000
MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH
DO NOT SCALE DRAWING

CONTRACT NO.
DRAWN 4 7 7
CHECK 4 7 7
ELEC.
MECH
DESIGN
APPR.
APPROVED 4/7/
APPROVED

NEXT ASSY USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

A B C D E F G H I J
MIL-D-1000 INTENDED USE CATEGORY

DMC DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

# FUNCTIONAL BLOCK DIAGRAM

| CODE IDENT NO. | SIZE | DWG NO. | REV |
|---|---|---|---|
| 19059 | E | 101792-340 | A |
| SCALE | WEIGHT | SHEET 1 OF 1 | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED DWG | 4/4/71 | [illegible] |
| A | 7787 REV 1 | SEE ECO | | |

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (1) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (11) release to a foreign government, as the interest of the United States may require, provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

L/M CONTINUED ON SHEET 2

| | ITEM NO. | QTY REQ | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|
| | 48 | E | MS3671C6 | NUT, PLAIN, SPECIAL CAP FEED 2C-32 | | |
| | 47 | 2 | MS16995-18 | SCREW, CAP, SOCKET | #6-32 X .80 LG | |
| | 46 | 12 | MS21083C04 | NUT SELF LOCK #4-40 | | |
| | 45 | 11 | MS35338-137 | WASHER LOCK SPECIAL #8 | | |
| | 44 | 15 | MS15795-841 | WASHER, FLAT #8 | | |
| | 43 | 7 | MS35338-136 | WASHER LOCK SPRING #6 | | |
| | 42 | 2 | MS35957-12 | SCREW, PAN HD | #4-40 X .19 LONG | |
| | 41 | 13 | MS15795-804 | WASHER, FLAT #4 | | |
| | 40 | 24 | MS35338-135 | WASHER LOCK SPRING #4 | | |
| | 39 | 12 | MS45204C4L | WASHER FLAT SPECIAL 0.D.A8 | | |
| | 38 | 28 | MS15795-802 | WASHER FLAT #2 | | |
| | 37 | 2 | MS35958-6C | SCREW, PAN HD | #10-32 X .31 LG | |
| | 36 | 2 | MS35957-47 | SCREW, PAN HD | #8-32 X .75 LG | |
| | 35 | 5 | MS35957-46 | SCREW, PAN HD | #8-32 X .62 LG | |
| | 34 | 6 | MS35957-44 | SCREW PAN HD | #8-32 X .44 LG | |
| | 33 | 2 | MS35957-45 | SCREW PAN HD | #8-32 X .38 LG | |
| | 32 | 2 | MS35957-31 | SCREW PAN HD | #6-32 X .62 LG | |
| | 31 | 2 | MS35957-30 | SCREW PAN HD | #6-32 X .50 LG. | |
| | 30 | 4 | MS35957-29 | SCREW, PAN HD | #6-32 X .44 LG | |
| | 29 | 4 | MS35937-17 | SCREW, PAN HD | #4-40 X .50 LG | |
| | 28 | 2 | MS24693-C28 | SCREW, FLAT HD | #6-32 X .50 LG | |
| | 27 | 1 | MS35957-46 | SCREW, PAN HD | #4-40 X .44 LONG | |
| | 26 | 10 | MS35957-18 | SCREW, PAN HD | #4-40 X .38 LONG | |
| | 25 | 14 | MS35957-14 | SCREW, PAN HD | #4-40 X .31 LONG | |
| | 24 | 6 | MS35957-13 | SCREW, PAN HD | #4-40 X .25 LONG | |
| | 23 | 2 | MS24693-C7 | SCREW, FLAT HD | #4-40 X .62 LONG | |
| | 22 | 6 | MS24693-C1 | SCREW, FLAT HD | #4-40 X .19 LONG | |
| | 21 | 2 | 101868 | HOLDER, LAMP | | |
| | 20 | 1 | MS3476F20-41S | CONNECTOR | | |
| | 19 | 1 | MS3106E22-22S | CONNECTOR | | |
| | 18 | 1 | 101834-100 | ASSY, INTERCONNECTION HARNESS | | |
| | 17 | 1 | 101810-101 | POWER SUPPLY, MAIN ASSY | | |
| | 16 | 10 | 101712-104 | PHASE DRIVE PCB ASSY | | |
| | 15 | 1 | 101710-104 | COMMON DRIVE PCB ASSY | | |
| 14. | | | | | | |
| 13 | | | | | | |
| 12 | 13 | 1 | 101710-101 | MOTOR DRIVER PCB ASSY | | |
| | 12 | 1 | 101833-100 | ASSY, INTERFACE HARNESS | | |
| | 11 | 1 | 102410-103 | ASSY, LOGIC BOARD | | |
| ⚠ | 10 | 1 | 102406 | PLATE, MOUNTING REAR CONNECTORS | | |
| 10 | 9 | 1 | 102411-100 | ASSY, PRINT SYSTEM | | |
| ⚠ | 8 | 1 | 101753-100 | ASSY, LAMP BRKT | | |
| ⚠ | 7 | 1 | 101777 | BATTERIES, CARDS | | |
| ⚠ | 6 | 1 | 101861-003 | RFI GASKET | | |
| ⚠ | 5 | 1 | 102403-100 | COVER, CONSOLE ASSY | | |
| ⚠ | 4 | 1 | 102405-100 | ASSY, FRONT CKTS | | |
| 4. | 3 | 1 | 102407-100 | ASSY, CONTROL PANEL | | |
| ⚠ | 2 | 1 | 102408-100 | ASSY, DOOR | | |
| ⚠ | 1 | 1 | 102401-100 | CONSOLE, MACHINING ASSY | | |

LIST OF MATERIAL

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

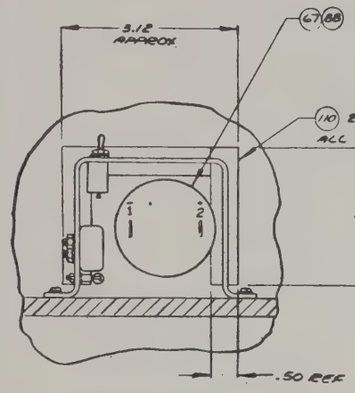
| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED DWG | 4-4-73 | [illegible] |
| A | 07897 MCL | SEE ECO | | |

"Furnished under United States Government Contract No. F30602-70-C-0091 Shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (i) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work, or (ii) release to a foreign government, as the interest of the United States may require, provided that in either case the release, use, duplication or disclosure hereof SHALL be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

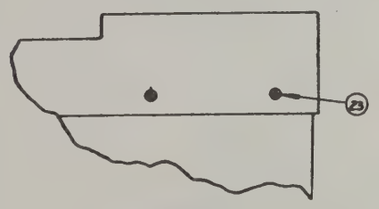
L/H CONTINUED ON SHEET 2

| ITEM NO. | QTY | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|
| 48 | 2 | MS3471CG | NUT, PLAIN, 2 PANEL ANCHORS #6-32 | | |
| 47 | 2 | MS16993-18 | SCREW, CAP, SOCKET | #6-32 X .60 LG | |
| 46 | 12 | MS21083C04 | NUT SELF-LOCK #4-40 | | |
| 45 | 11 | MS35338-137 | WASHER LOCK SPRING #8 | | |
| 44 | 15 | MS15795-804 | WASHER, FLAT #8 | | |
| 43 | 7 | MS35338-136 | WASHER, LOCK SPRING | #6 | |
| 42 | 2 | MS51957-12 | SCREW, PAN HD | #4-40 X .19 LONG | |
| 41 | 13 | MS15795-804 | WASHER, FLAT #6 | | |
| 40 | 24 | MS35338-135 | WASHER, LOCK SPRING #4 | | |
| 39 | 12 | MS35206C4L | WASHER, FLAT #4 REDUCED O.D. | | |
| 38 | 28 | MS15795-802 | WASHER FLAT #4 | | |
| 37 | 2 | MS51958-60 | SCREW, PAN HD | #10-32 X .31 LG | |
| 36 | 2 | MS51957-47 | SCREW, PAN HD | #8-32 X .75 LG | |
| 35 | 5 | MS51957-46 | SCREW, PAN HD | #8-32 X .62 LG | |
| 34 | 6 | MS51957-44 | SCREW PAN HD | #8-32 X .44 LG | |
| 33 | 2 | MS51957-43 | SCREW PAN HD | #8-32 X .38 LG | |
| 32 | 2 | MS51957-31 | SCREW PAN HD | #6-32 X .62 LG | |
| 31 | 2 | MS51957-30 | SCREW PAN HD | #6-32 X .50 LG. | |
| 30 | 4 | MS51957-29 | SCREW, PAN HD | #6-32 X .44 LG | |
| 29 | 4 | MS51957-17 | SCREW, PAN HD | #4-40 X .50 LG | |
| 28 | 2 | MS24693-C28 | SCREW, FLAT HD | #6-32 X .50 LG | |
| 27 | 1 | MS51957-16 | SCREW, PAN HD | #4-40 X .44 LONG | |
| 26 | 10 | MS51957-15 | SCREW, PAN HD | #4-40 X .38 LONG | |
| 25 | 14 | MS51957-14 | SCREW, PAN HD | #4-40 X .31 LONG | |
| 24 | 6 | MS51957-13 | SCREW, PAN HD | #4-40 X .25 LONG | |
| 23 | 2 | MS24693-C7 | SCREW, FLAT HD | #4-40 X .62 LONG | |
| 22 | 6 | MS24693-C1 | SCREW, FLAT HD | #4-40 X .19 LONG | |
| 21 | 2 | 101862 | HOLDER, LAMP | | |
| 20 | 1 | MS3106F20-4S | CONNECTOR | | |
| 19 | 1 | MS3106E22-22S | CONNECTOR | | |
| 18 | 1 | 101838-100 | ASSY, INTERCONNECTION HARNESS | | |
| 17 | 1 | 101810-101 | POWER SUPPLY, MAIN ASSY | | |
| 16 | 10 | 101712-104 | PRINTER DRIVER PCB ASSY | | |
| 14 | 1 | 101711-103 | COMMON DRIVER PCB ASSY | | |
| 13 | 1 | 101710-101 | MOTOR DRIVER PCB ASSY | | |
| 12 | 1 | 101833-100 | ASSY, INTERFACE HARNESS | | |
| 11 | 1 | 102410-103 | ASSY, LOGIC BOARD | | |
| 10 | 1 | 102406 | PLATE, MOUNTING REAR CONNECTORS | | |
| 9 | 1 | 102411-100 | ASSY, PRINT SYSTEM | | |
| 8 | 1 | 101733-100 | ASSY, LAMP BEZEL | | |
| 7 | 1 | 101777 | BEZEL/GASKET, PAPER | | |
| 6 | 1 | 101861-003 | RAI GASKET | | |
| 5 | 1 | 102403-100 | COVER, CONSOLE ASSY | | |
| 4 | 1 | 102405-100 | ASSY, PROT CKTS | | |
| 3 | 1 | 102407-100 | ASSY, CONTROL PANEL | | |
| 2 | 1 | 102408-100 | ASSY, DOOR | | |
| 1 | 1 | 102401-100 | CONSOLE, MACHINED ASSY | | |

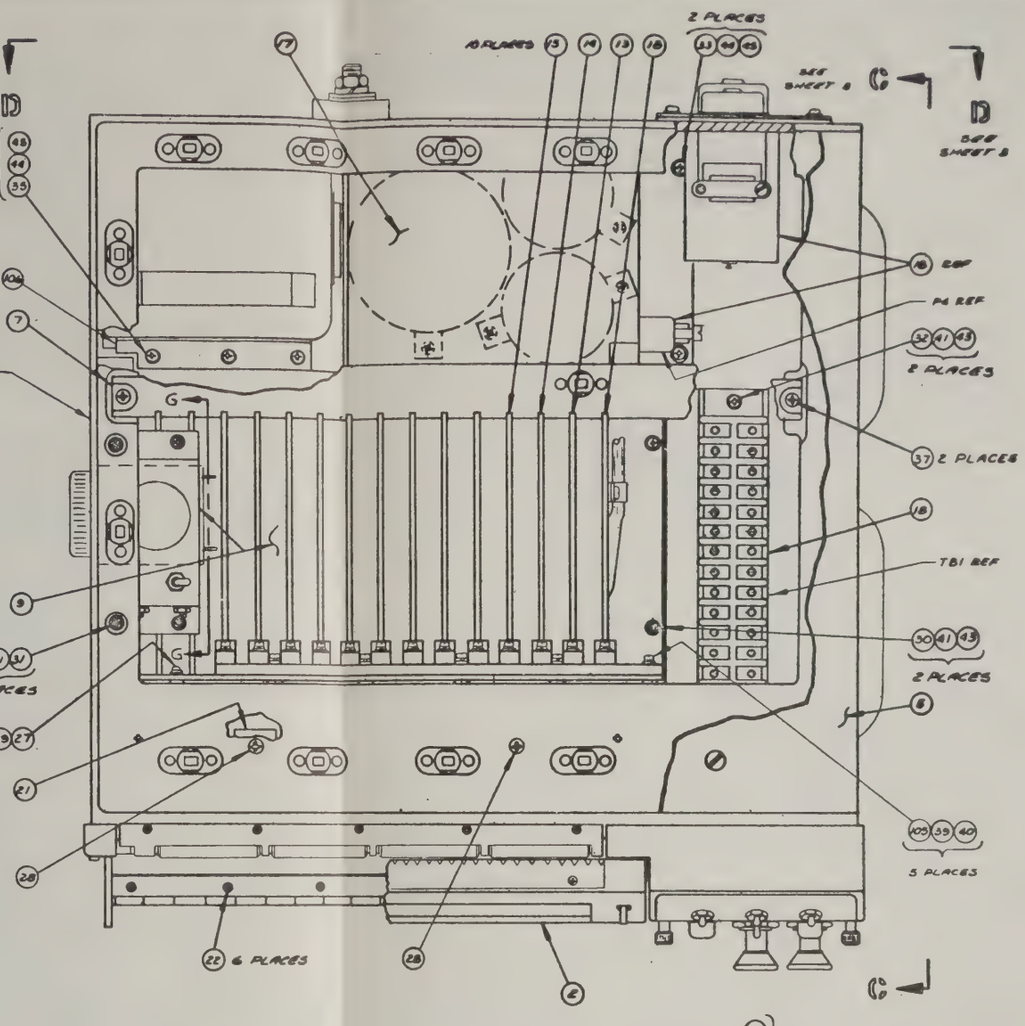
LIST OF MATERIAL

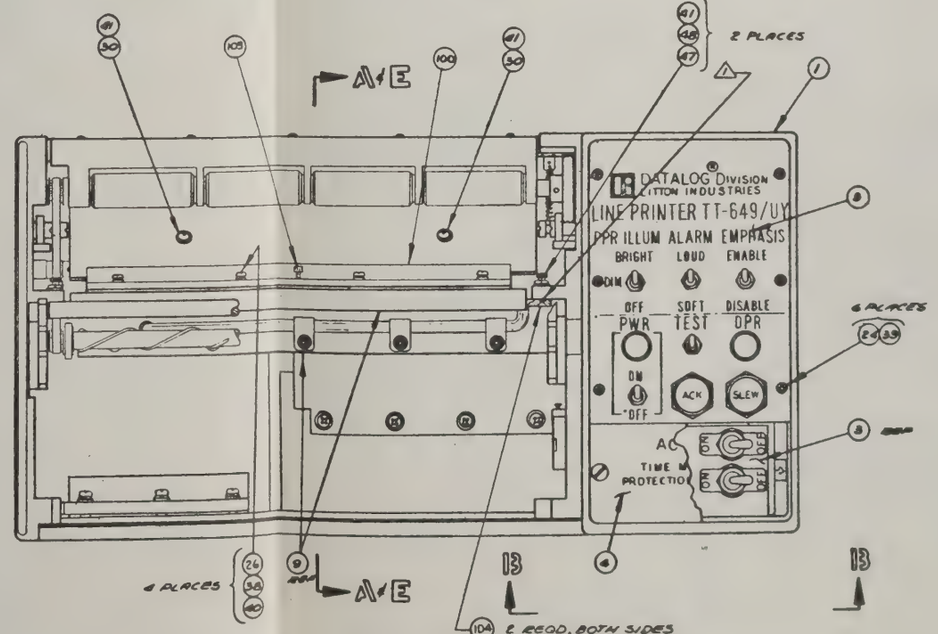



VIEW - GG
ROTATED 90° CLOCKWISE



VIEW 13-13




OMITTED FOR CLARITY
ITEM 2
FOR FURTHER CLARIFICATION
SEE SHEET 2

14. ELECTRICAL REFERENCE DESIGNATION PER ANSI Y32,16a-1970.
13. ABBREVIATIONS PER MIL-STD-12C.
12. EQUIPMENT MEETS THE REQUIREMENTS OF MIL-S-901 HI SHOCK DESIGN SHOCKPROOFNESS GRADE A, LIGHT WEIGHT, FIXTURE 4A, CLASS I.
11. INSTALL ITEMS 108 AND 109 BETWEEN CONNECTOR FLANGES AND ITEM 10.
10.
9. ITEM 92 IS SUPPLIED SEPARATELY WITH EVERY UNIT.
8. ADJUST ITEM 58 TO DIMENSION SHOWN.
7. ITEM 98 TO BE FLUSH OR UNDERFLUSH WITH ITEMS 49 AND 51.
6. SOLDERING PER DMC WORKMANSHIP STANDARDS MANUAL NO. 885000.
5. ORIENTATE CONNECTORS WITH PINS 'A' AS SHOWN.
4. USE .005 FILLER GAGE OR EQUIV.
3. USE VENDOR SUPPLIED HARDWARE.
2. PRESS FIT ITEMS 66 AND 66 INTO ITEMS 1, 48 AND 50 FLUSH WITH SURFACES B, F, G AND H.
1. USE DMC TOOL # 950002 TO ADJUST DRIVE HEAD.

NOTES: UNLESS OTHERWISE SPECIFIED.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | I | J |

MIL-D-1000 INTENDED USE CATEGORY

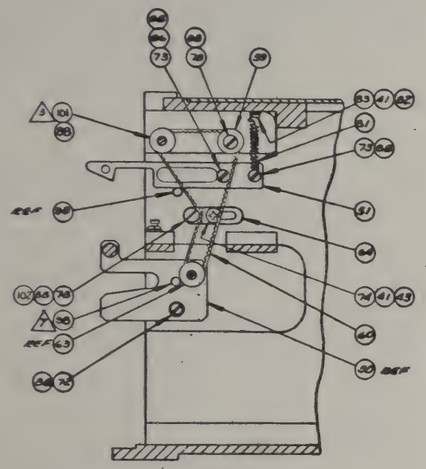
DATAMETRICS CORPORATION
7300 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

APERTURE, 49IN ASSY

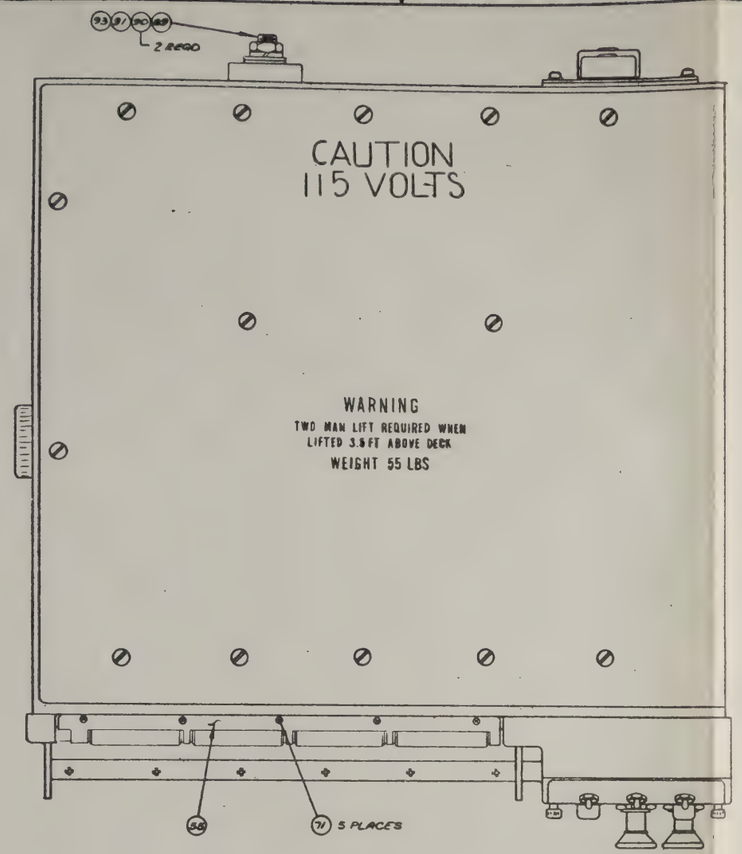
| SIZE | CAGE IDENT NO. | DWG NO. | REV |
|---|---|---|---|
| E | 19069 | 102400-100 | A |

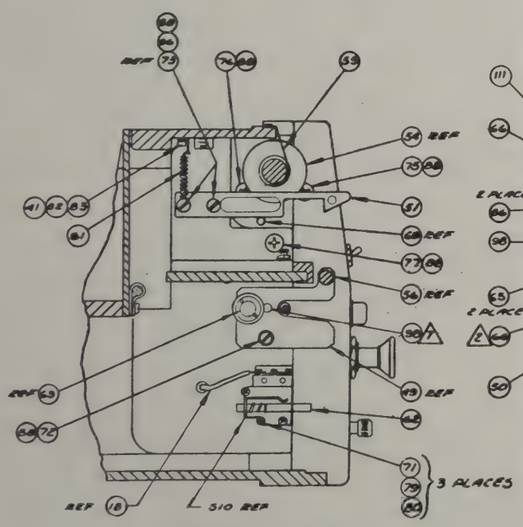
SCALE 1/7 WEIGHT SHEET 1 of 3

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19069



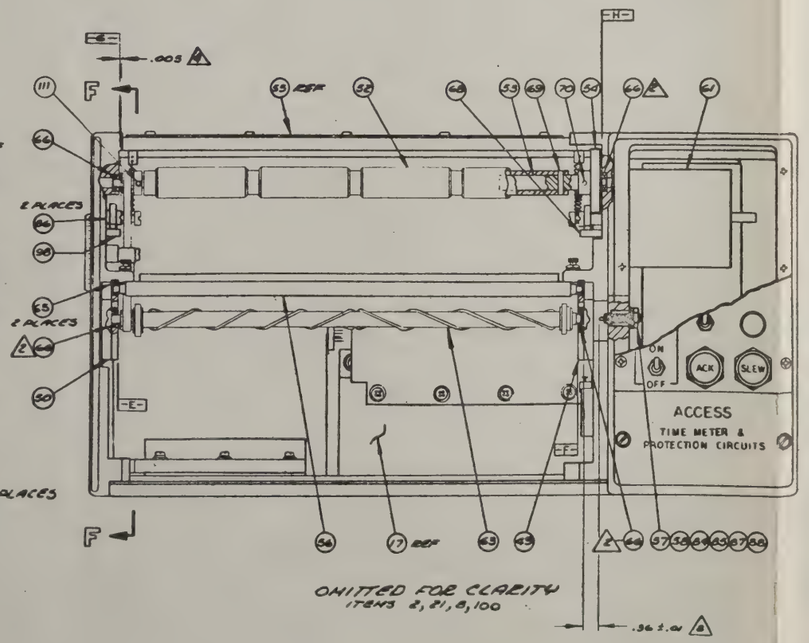
SECTION F-F




SECTION E-E

OMITTED FOR CLARITY
ITEMS 2, 21, 8, 100




OMITTED FOR CLARITY
ITEMS 2, 21, 8, 100

REVISIONS

| SYM | ECO | DESCRIPTION | DATE | APPROVED |
|---|---|---|---|---|
| | | SEE PAGE 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 111 | 2 | MS18066-1 | SET SCREW | NO. 4-40 x .12 LG | |
| | 110 | A/R | 922005-0002 | TAPE, FOAM-ADHESIVE .50 WIDE x 1/16 | | |
| | 109 | 1 | 923002-0002 | CONNECTOR GASKET EMI | | |
| | 108 | 1 | 923002-0001 | CONNECTOR GASKET EMI | | |
| | 107 | REF | 102404-320 | SCHEMATIC, INTERCONNECTION | | |
| | 106 | 1 | 102177 | RETAINER, TRANSFORMER | | |
| | 105 | 3 | MS51957-18 | SCREW, PAN HD | NO. 4-40 X .62 LG | |
| | 104 | 4 | MS24693-C5 | SCREW, FLAT HEAD | #4-40 x .44 LG | |
| | 103 | 1 | MS21295-7 | SCREW, SOCKET CAP | #4-40 x .31 LG | |
| | 102 | 1 | 102214 | BUSHING, PLAIN | | |
| | 101 | 1 | 102226 | PULLEY | | |
| | 100 | 1 | 101965 | BAR HEAD ADJUSTMENT | | |
| | 99 | A/R | SNOURMAPS | SOLDER, TIN ALLOY | | QQ-S-571 |
| | 98 | 3 | MS171585 | PIN, SPRING | | |
| | 97 | 1 | 102187 | INFORMATION NAME PLATE | | |
| | 96 | | | | | |
| | 95 | 1 | MS25043-22C | CAP, CONNECTOR | | |
| | 94 | 1 | MS3181-20C | CAP, CONNECTOR | | |
| | 93 | 1 | MS35691-19 | NUT, PLAIN HEX (JAM) | 3/8-16 UNR | |
| | 92 | 1 | 101866 | DARK ADAPTATION KIT | | 3 |
| | 91 | 1 | MS35338-41 | WASHER, LOCK SPRING # 3/8 | | |
| | 90 | 2 | MS15795-813 | WASHER, FLAT # 3/8 | | |
| | 89 | 1 | MS16995-83 | SCREW, CAP, SOCKET HEAD | 3/8-16 x 1.50 | |
| | 88 | A/R | GRADE C | RETARDING COMPOUND | LIQUID CC: BLUE | MIL-S-22473D |
| | 87 | 1 | MS25082-3 | NUT PLAIN HEX | #10-32 | |
| | 86 | 2 | 929006-0001 | WASHER, NYLON | .080 THK | |
| | 85 | 1 | 815003-0002 | LUG, SOLDER #10 | | |
| | 84 | 1 | MS15795-802 | WASHER, FLAT #10 | | |
| | 83 | 2 | MS51957-26 | SCREW PAN HD | #6-32 x 2.5 LG | |
| | 82 | 2 | 915003-0001 | LUG, SOLDER #6 | | |
| | 81 | 2 | 927001-0004 | SPRING, EXTENSION | | |
| | 80 | 3 | MS35338-134 | WASHER, SPLIT LOCK | #2 | |
| | 79 | 3 | MS15795-802 | WASHER, FLAT #2 | | |
| | 78 | 2 | 929004-0004 | SCREW, SHOULDER | #8-32 x .38 LG | |
| | 77 | 1 | MS24693-C50 | SCREW, FLAT HD, 100° | #8-32 x .80 LG | |
| | 76 | 1 | MS24683-C48 | SCREW, FLAT HD, 100° | #8-32-.38 LG | |
| | 75 | 1 | MS24693-C46 | SCREW, FLAT HD | #8-32 x .25 LG | |
| | 74 | 1 | MS51957-27 | SCREW, PAN HD | #6-32 x .31 LG | |
| | 73 | 4 | 929004-0002 | SCREW, SHOULDER | #6-40 | |
| | 72 | 2 | 929004-0001 | SCREW, SHOULDER | #4-40 | |
| | 71 | 8 | MS51957-2 | SCREW, PAN HD | #2-56 x .19 LG | |
| | 70 | 1 | MS17466 | PIN, SPRING | .078 DIA x .50 LG | |
| | 69 | 1 | MS17496 | PIN, SPRING | .094 DIA x .50 LG | |
| | 68 | 1 | MS17587 | PIN, SPRING | .188 DIA x .56 LG | |
| DS3 | 67 | 1 | 102220 | ALARM | | |
| | 66 | 4 | 929001-0001 | BEARING, PRECISION BALL | .187 I.D. x .375 O.D. | |
| | 65 | 2 | 929001-0002 | BEARING, PRECISION BALL | .125 I.D. x .250 O.D. | |
| | 64 | 1 | 101837 | IDLER TAKE-UP | | |
| | 63 | 1 | 101737-100 | ROLLER DRIVE COMMON | | |
| S10 | 62 | 1 | MS16106-4 | SWITCH | | |
| | 61 | 1 | 101707-100 | ASSY, MOTOR | | |
| | 60 | 1 | 929018-0001 | BELT .187 WIDE | | |
| | 59 | 1 | 102225 | PULLEY, HUBLESS | | |
| | 58 | 1 | 927000-0003 | PLUNGER, SPRING | | |
| | 57 | 1 | 101798 | BUSHING, COMMON CONTACT | | |
| | 56 | 1 | 101773 | ROLLER, PRINT HD | | |
| | 55 | 1 | 101778 | BRACKET PREC.-CAM | | |
| | 54 | 1 | 101716 | SPUR GEAR HELICAL | | |
| | 53 | 1 | 101732 | SHAFT, GEAR DRIVE ROLLER | | |
| | 52 | 1 | 101751 | ROLLER DRIVE | | |
| | 51 | 2 | 102204 | LATCH, DOOR | | |
| | 50 | 1 | 101772-002 | PLATE ROLLER (OPPOSITE) | | |
| | 49 | 1 | 101772-001 | PLATE ROLLER (SHOWN) | | |

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL. XX ± .010 XXX ± .005
FRACT. ± .031 ANG. ± 0°30'
HOLE TOLERANCES
.001 TO .125 + .003-.000
.126 TO .250 + .004-.000
.251 TO 1.0 + .006-.000
OVER TO 3.0 + .010-.000
MACH. FINISH √ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO. F30602-70-C-0091
APPROVALS:
APPROVED
DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7300 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

PRINTER, MAIN A534

CODE IDENT NO. 19059 | SIZE E | 102400-100 | REV A
SCALE 1/1 | WEIGHT | SHEET 2 OF 3

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | |
|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |

SEE PAGE 1

| | | | | | | |
|---|---|---|---|---|---|---|
| | 111 | 2 | MS18066-1 | SET SCREW | NO. 4-40 x .12 LG | |
| | 110 | A/R | 922005-0002 | TAPE, -CAM- ADHESIVE .30 WIDE 3/16 | | |
| | 109 | 1 | 923002-0002 | CONNECTOR GASKET EMI | | |
| | 108 | 1 | 923002-0001 | CONNECTOR GASKET EMI | | |
| | 107 | REF | 102404-320 | SCHEMATIC, INTERCONNECTION | | |
| | 106 | 1 | 102177 | RETAINER, TRANSFORMER | | |
| | 105 | 3 | MS51957-18 | SCREW, PAN HD | NO. 4-40 X .62 LG | |
| | 104 | 4 | MS24693-C5 | SCREW, FLAT HEAD | #4-40 X .44 LG | |
| | 103 | 1 | MS21295-7 | SCREW, SOCKET CAP | #4-40 X .31 LG | |
| | 102 | 1 | 102214 | BUSHING, PLAIN | | |
| | 101 | 1 | 102226 | PULLEY | | |
| | 100 | 1 | 101965 | BAR HEAD ADJUSTMENT | | |
| | 99 | A/R | SOLDERMAP3 | SOLDER, TIN ALLOY | | QQ-S-571 |
| | 98 | 3 | MS171585 | PIN, SPRING | | |
| | 97 | 1 | 102187 | MFRDMATION WAND PLATE | | |
| | 96 | | | | | |
| | 95 | 1 | MS25043-22C | CAP, CONNECTOR | | |
| | 94 | 1 | MS3181-20C | CAP, CONNECTOR | | |
| | 93 | 1 | MS35691-19 | NUT, PLAIN HEX (JAM) | 3/8-16 UNF | |
| | 92 | 1 | 101864 | DARK ADAPTATION KIT | | 3 |
| | 91 | 1 | MS35338-141 | WASHER, LOCK SPRING #3/8 | | |
| | 90 | 2 | MS15795-813 | WASHER, FLAT #3/8 | | |
| | 89 | 1 | MS16995-83 | SCREW, CAP, SOCKET HEAD | 3/8-16 x 1.50 | |
| | 88 | A/R | GRADE C | RETAINING COMPOUND | LIQUID GE: BLUE | MIL-S-22473C |
| | 87 | 1 | MS25082-3 | NUT PLAIN HEX | #10-32 | |
| | 86 | 2 | 929006-0001 | WASHER, NYLON | .060 THK | |
| | 85 | 1 | 315003-0002 | LUG, SOLDER #10 | | |
| | 84 | 1 | MS15795-842 | WASHER, FLAT #10 | | |
| | 83 | 2 | MS51957-26 | SCREW PAN HD | #6-32 x .25 LG | |
| | 82 | 2 | 315003-0001 | LUG, SOLDER #6 | | |
| | 81 | 2 | 927001-0058 | SPRING, EXTENSION | | |
| | 80 | 3 | MS35338-134 | WASHER, SPLIT LOCK | #2 | |
| | 79 | 3 | MS15795-802 | WASHER, FLAT #2 | | |
| | 78 | 2 | 929004-0004 | SCREW, SHOULDER | #8-32 x .38 LG | |
| | 77 | 1 | MS24693-C50 | SCREW, FLAT HD, 100° | #8-32 x .50 LG | |
| | 76 | 1 | MS24683-C48 | SCREW, FLAT HD 100° | #8-32 - .38 LG | |
| | 75 | 1 | MS24693-C46 | SCREW, FLAT HD | #8-32 x .25 LG | |
| | 74 | 1 | MS51957-27 | SCREW, PAN HD | #6-32 x .31 LG | |
| | 73 | 4 | 929004-0003 | SCREW, SHOULDER | #4-40 | |
| | 72 | 2 | 929004-0001 | SCREW, SHOULDER | #4-40 | |
| | 71 | 8 | MS51957-2 | SCREW, PAN HD | #2-56 x .19 LG | |
| | 70 | 1 | MS171466 | PIN, SPRING | .078 DIA x .50 LG | |
| | 69 | 1 | MS171496 | PIN, SPRING | .094 DIA x .50 LG | |
| | 68 | 1 | MS171587 | PIN, SPRING | .188 DIA x .36 LG | |
| DS3 | 67 | 1 | 102220 | ALARM | | |
| | 66 | 4 | 929001-0001 | BEARING, PRECISION BALL | .187 I.D. x .373 O.D. | |
| | 65 | 2 | 929001-0002 | BEARING, PRECISION BALL | .125 I.D. x .250 O.D. | |
| | 64 | 1 | 101837 | IDLER TAKE-UP | | |
| | 63 | 1 | 101737-100 | ROLLER DRIVE COMMON | | |
| S10 | 62 | 1 | MS16106-4 | SWITCH | | |
| | 61 | 1 | 101707-100 | ASSY, MOTOR | | |
| | 60 | 1 | 929018-0001 | BELT .187 WIDE | | |
| | 59 | 1 | 102225 | PULLEY, HUBLESS | | |
| | 58 | 1 | 927000-0003 | PLUNGER, SPRING | | |
| | 57 | 1 | 101798 | BUSHING, COMMON CONTACT | | |
| | 56 | 1 | 101773 | ROLLER, PRINT HD | | |
| | 55 | 1 | 101778 | BRACKET REEL-OFF | | |
| | 54 | 1 | 101716 | SPUR GEAR HELICAL | | |
| | 53 | 1 | 101752 | SHAFT, GEAR DRIVE ROLLER | | |
| | 52 | 1 | 101751 | ROLLER DRIVE | | |
| | 51 | 2 | 102208 | EATON, DOOR | | |
| | 50 | 1 | 101772-002 | PLATE ROLLER (OPPOSITE) | | |
| | 49 | 1 | 101772-001 | PLATE ROLLER (SHOWN) | | |
| SYM | ITEM NO. | QTY. REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .010 .XXX ± .005
FRACT ± 1/32 ANG. ± 0°30'

NEXT ASSY | USED ON
APPLICATION
HEAT TREAT
FINISH
MATL

HOLE TOLERANCES
.000 TO .125 + .002-.000
.126 TO .250 + .003-.000
.251 TO 1.0 + .004-.000
1.001 TO 3.0 + .005-.000

BREAK FINISH √ OR BETTER
BREAK SHARP EDGES AND CORNERS ALL BURRS
CODES APPLY AFTER FINISH

CONTRACT NO. CAT-0002 6-70

APPROVED

DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
[redacted]
7630 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

PRINTER, MAIN ASSY

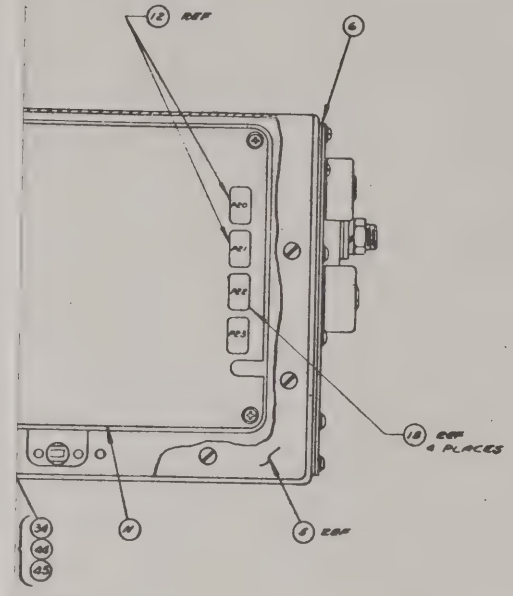
CODE IDENT NO. 19059 | SIZE E | 102400-100 | REV A

SCALE 1/1 | WEIGHT | SHEET 2 OF 3

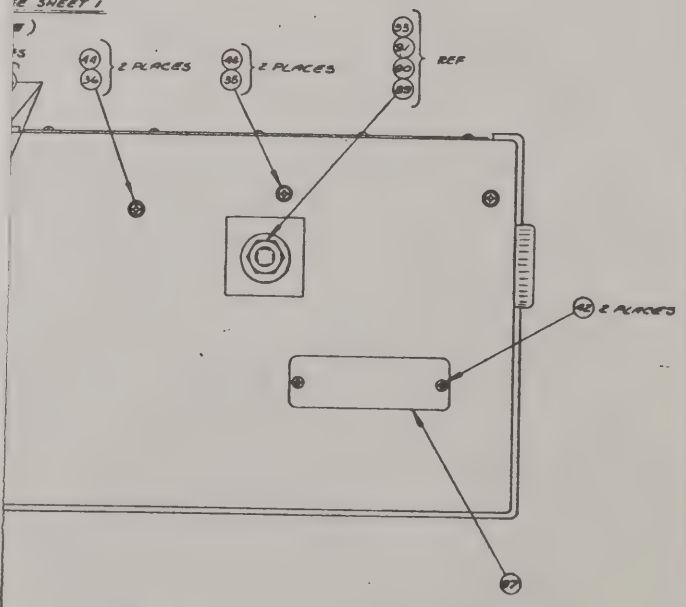
CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |

SEE PAGE 1




E SHEET 1




VIEW D-D SEE SHEET 1
ROTATED 180°

| SYM | ITEM NO | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .03 .XXX ± .010
FRACT. ± 1/32 ANG. ± 0°30'

HOLE TOLERANCES
.060 TO .128 +.005-.000
.136 TO .358 +.006-.000
.364 TO 1/2 +.004-.000
13/64 TO 3/4 +.005-.000

MACH. FINISH 125 OR BETTER
BREAK SHARP EDGES AND REMOVE ALL BURRS
DEMB APPLY AFTER FINISH

CONTRACT NO.
DRAWN
CHECK
ELEC.
ENGR
APPR.
APPROVED
APPROVED
DO NOT SCALE DRAWING

NEXT ASSY APPLICATION
USED ON
MFGT TRUST
SPEC.
FINISH
SPEC.

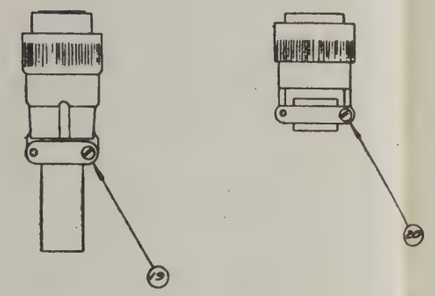
DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

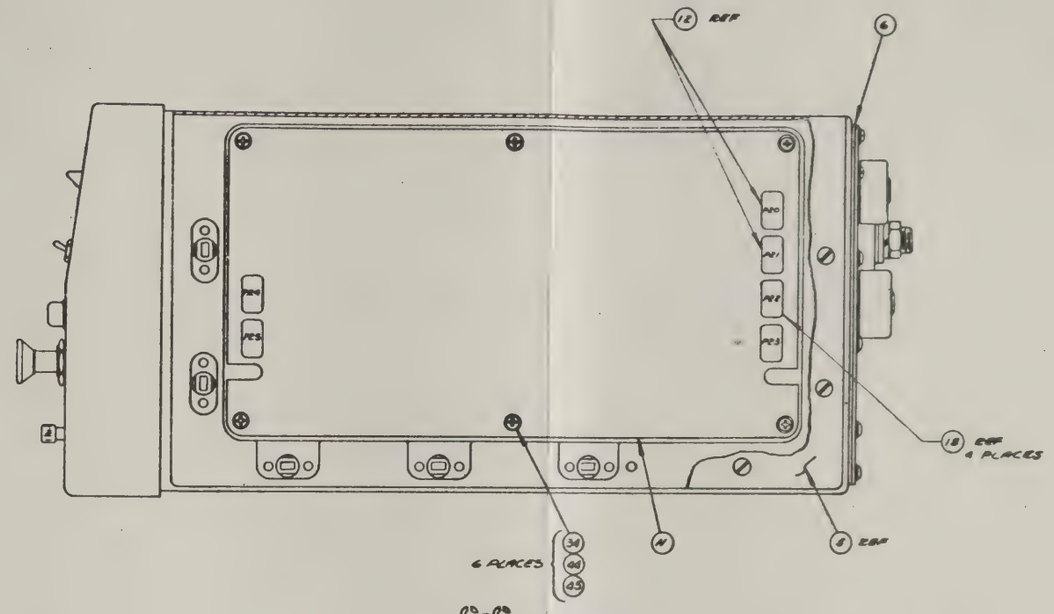
PRINTER, MAIN A334

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 18059 | E | 102400-100 | A |
| SCALE 1/1 | WEIGHT | SHEET 3 OF 8 | |

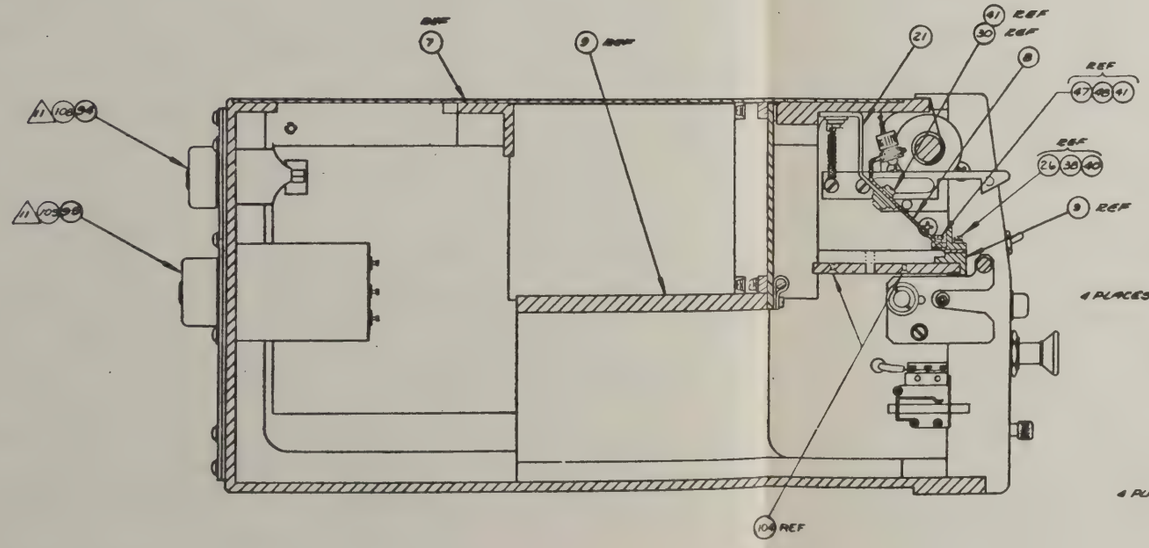
CONTRACT NO. F30602-70-C-0091 CODE IDENT 19089

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | SEE PAGE 1 | | |



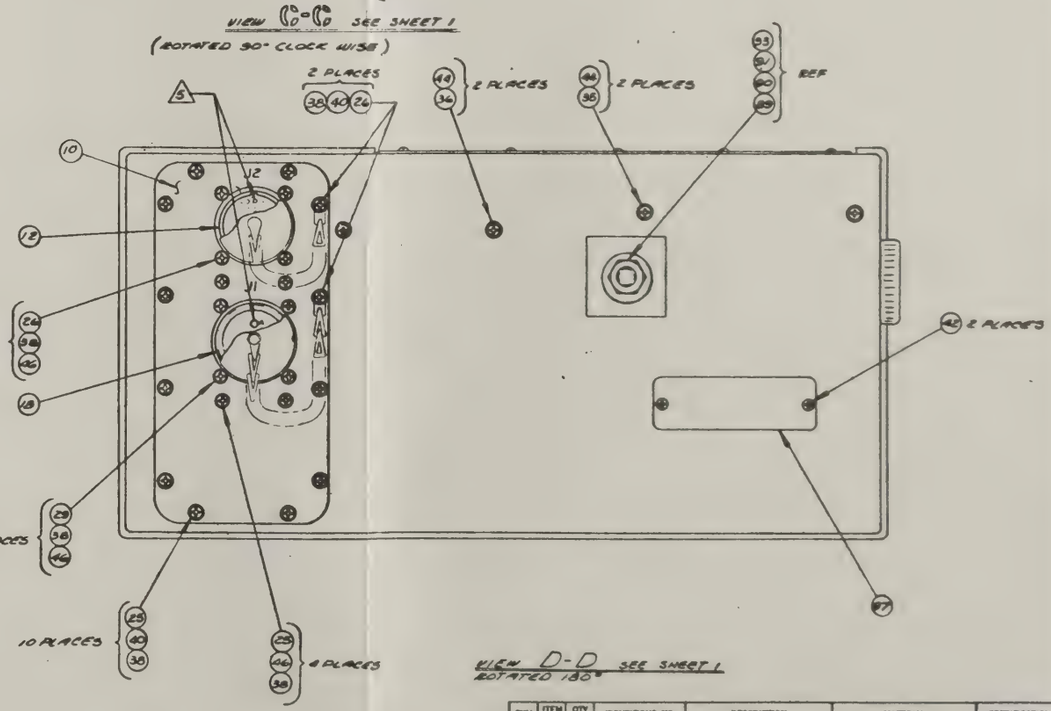




VIEW C-C SEE SHEET 1




SECTION A-A SEE SHEET 1
ITEM 17 OMITTED

(ROTATED 90° CLOCK WISE)




VIEW D-D SEE SHEET 1
ROTATED 180°

LIST OF MATERIAL

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .02 .XXX ± .005
FRACT. ± .031 ANG. ± 0°30'
HOLE TOLERANCES
.015 TO .125 +.003 -.001
.126 TO .250 +.003 -.001
.251 TO 1/4 +.004 -.001
33/64 TO 3/4 +.005 -.001
MACH. FINISH √ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO.
DRAWN
CHECK
ELEC.
MECH
DESIGN
APPR.
APPROVED
APPROVED
DO NOT SCALE DRAWING

NEXT ASSY | USED ON
APPLICATION
NEXT ASSY
SPEC.
FINISH
SPEC.

DATAMETRICS CORPORATION
7300 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

PRINTER, MAIN ASSY

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | E | 102400-100 | A |
| SCALE 1/1 | WEIGHT | SHEET 5 OF 5 | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED DWG | 4/11/73 | [illegible] |
| A | 0793 n/i | SEE ECO | | |

- INTERFACE CONTROL DWG 102400-300
  - TOP DWG 102400-300
  - BUNKER RAMO SPEC 4901702
  - DIAGRAM INTERCONNECTION 102404-320
  - BLOCK DIAGRAM 101792-340
  - MAIN ASSY 102400-100
    - RETAINER TRANSFORMER 102177
    - SHAFT DRIVE ROLLER 101732
    - ABUT HEAD ROLLER 101773
    - ROLLER PLATE SHOWN 101772-001
    - REEL OFF BRACKET 101778
    - MOTOR ASSY 101707-100
    - MOTOR CONTROL SPEC 101707-600
    - HELICAL SPUR GEAR 101716
    - DOOR LATCH 102204
    - IDLER, TAKE UP 101837
    - PULLEY, MUBLESS 102235
    - BUSHING, PLAIN 102214
    - PULLEY 102226
    - POLLER DRIVE COMMON 101737-100
      - PULLEY BELT 102205
    - ALARM 102220
    - DRIVE ROLLER 101731
    - PLATE MOUNT REAR COMM 102406
    - ROLLER PLATE OPPOSITE 101772-002
    - BAR HEAD ADJUSTMENT 101969
    - EFI GASKET REAR COMM PLATE 101841-008
    - CARD RETAINER 101777
    - HOLDER LAMP BRACKET 101862
    - BUSHING COMMON CONTACT 101798
    - SPEC, PROCESS FOR ABLEBOND 163-4 885011
      - LAMP BRACKET ASSY 101755-100
        - LAMP BRACKET 101755
    - CONSOLE CASTING 101793-003
    - PAINTING INSTRUCTIONS CONSOLE 885026
    - FINISH & PAINT SPEC 885027
    - DOOR ASSY 102408-100
      - DRIVER IDLER ARM SHOWN 101724-001
      - DRIVER IDLER ARM OPP 101724-002
      - DOOR IDLER ROLLER 101978
      - GUIDE PAPER 101873
      - DOOR HINGE 101728
      - WASHER DOOR 101881
      - DOOR ROLLER LOWER 101766
      - DOOR LOWER ARM 101767
      - PAPER CUTTER 101732
      - CONSOLE MACHINING ASSY 102401-100
        - DOOR CASTING 101795
        - FINISH AND PAINT SPEC 885027
      - DOOR MACHINING ASSY 102402-100
        - ARTWORK MASTER 101818-300
      - DECAL, PAPER ROUTING 101818
      - ARTWORK, SILKSCREEN DIAGRAM 101768-302
      - SILKSCREEN COVER 101768-301
      - SILKSCREEN LIFT 101768-303
      - FINISH AND PAINT SPEC 895027
    - CONSOLE COVER, ASSY 102403-100
      - FINISH AND PAINT SPEC 893027
      - SILKSCREEN PROT. CKTS COVER 101764-500
    - COVER ASSY, PROT. CKTS 102405-100
      - CONTROL PANEL 101818
      - ARTWORK SILKSCREEN 101818-500
      - BRACKET BREAKER/TIME METER 101806
      - FINISH AND PAINT SPEC 895016
      - BRACKET RESISTOR 101823
    - COUT DRIVER ASSY 102407-100
    - PWR SUPPLY MAIN ASSY 101810-101
      - P/S PCB ASSY 101814-101
        - MASTER DWG P/S PCB 101813
        - ARTWORK MASTER 101813-300
        - SCHEMATIC P/S PCB 101814-320
      - PLATE MTG SUB ASSY 101844-100
        - PLATE MTG POWER SUPPLY 101844
        - CLIP CAPACITOR 101860
        - BRACKET MTG COVER 101859
      - HEAT SINK ASSY 101845-100
        - HEAT SINK POWER SUPPLY 101848
      - CHASSIS SUB-ASSY 101843-100
        - CHASSIS POWER SUPPLY 101843
      - TRANSFORMER SPECIFICATION 101815-600
        - CAPACITOR, BRACKET 101842
      - WIRE LIST 101851-861
      - INTER-CONNECTION DIAGRAM 101851-320
    - COMMON DRIVER PCB ASSY 101711-104
      - MASTER DWG COMMON DRIVER PCB 101702
      - ARTWORK MASTER 101702-300
      - SCHEMATIC COMMON DRIVER 101711-320
    - MOTOR DRIVER PCB ASSY 101710-101
      - MASTER DWG MOTOR DRIVER PCB 101701
      - ARTWORK MASTER 101701-300
      - SCHEMATIC MOTOR DRIVE 101710-320
    - FINGER DRIVER PCB ASSY 101712-104
      - MASTER DWG FINGER DRIVER PCB 101703
      - ARTWORK MASTER 101703-300
      - SCHEMATIC FINGER DRIVER 101712-320
    - PRINT HEAD BOARD ASSY 101722-100
      - CONTACT HEAD BOARD SPRING 101721
      - CONTACT RETAINER 101829
      - CONTACT SPRING RETAINING STRIP 101853
      - PRESSURE PAD, PRINT CONTACT 102169
      - MACHINING DETAILS PRINT HD BRD 101808
      - MASTER DWG CIRCUITRY ROUTE, PRINT HD 101719
      - ARTWORK MASTER 101718-300
    - MOTHER BRD ASSY 101709-101
      - MASTER DWG MOTHER BRD 101700-003
      - ARTWORK MASTER 101700-300
      - SCHEMATIC MOTHER BRD 101709-320
      - SPACER, CONNECTOR 102176
      - ASSY BRACKET ALARM MAINT. PANEL 102412-100
      - BRACKET ALARM MAINT. PANEL 101817
      - WIRE LIST MAINTENANCE PANEL 102412-860
      - WIRE LIST INSTRUCTIONS 101804-860
      - CARD GUIDE 101739-003
    - INTER-CONNECTION HARNESS ASSY 101834-100
      - EFI FILTER & CASE 102189-600
      - MASTER DWG CONNECTOR PCB 101706
      - ARTWORK MASTER 101706-300
    - INTERFACE HARNESS ASSY 101833-100
    - ASSY PRINT SYSTEM 102411-700
      - MASTER DWG M/N BOARD 101717-101
      - ASSY VOLTAGE DETECTION MODULE II 101828-100
      - ASSY VOLTAGE DETECTION MODULE I 101827-100
      - FILTER MODULE ASSY 101782-101
      - NOS INTERFACE MODULE ASSY 101781-101
      - CLOCK OSC MODULE ASSY 101783-101
      - COMPONENT MODULE ASSY 101784-101
      - REFERENCE MODULE ASSY 101882-101
      - LOGIC DIAGRAMS 102410-320
      - LOGIC WIRE LIST 102410-860
      - RETAINER, IRON 102174
    - LOGIC BOARD ASSY 102410-103
    - FACTORY ACCEPTANCE TEST PROCEDURES 102400-740
    - DARK ADAPT. KIT 101864
      - LENS MODIFICATION 101865-099
      - LENS MODIFICATION 101865-087
    - INFO PLATE 102187
      - ARTWORK INFO PLATE 102187-300

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .XXX ±
FRACT ± .005 ANG. ± 0°30'
HOLE TOLERANCES
.040 TO .128 +.002 -.001
.136 TO .228 +.003 -.001
.234 TO 1/2 +.004 -.001
33/64 TO 3/4 +.005 -.001
MACH. FINISH 125 OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DYNE APPLY AFTER FINISH

CONTRACT NO.
DRAWN [illegible]
CHECK M. BRATCH
ELEC. DAN CI
MECH [illegible]
DESIGN
APPR.
APPROVED [illegible] 4/11/73
APPROVED
DO NOT SCALE DRAWING

NEXT ASSY | USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

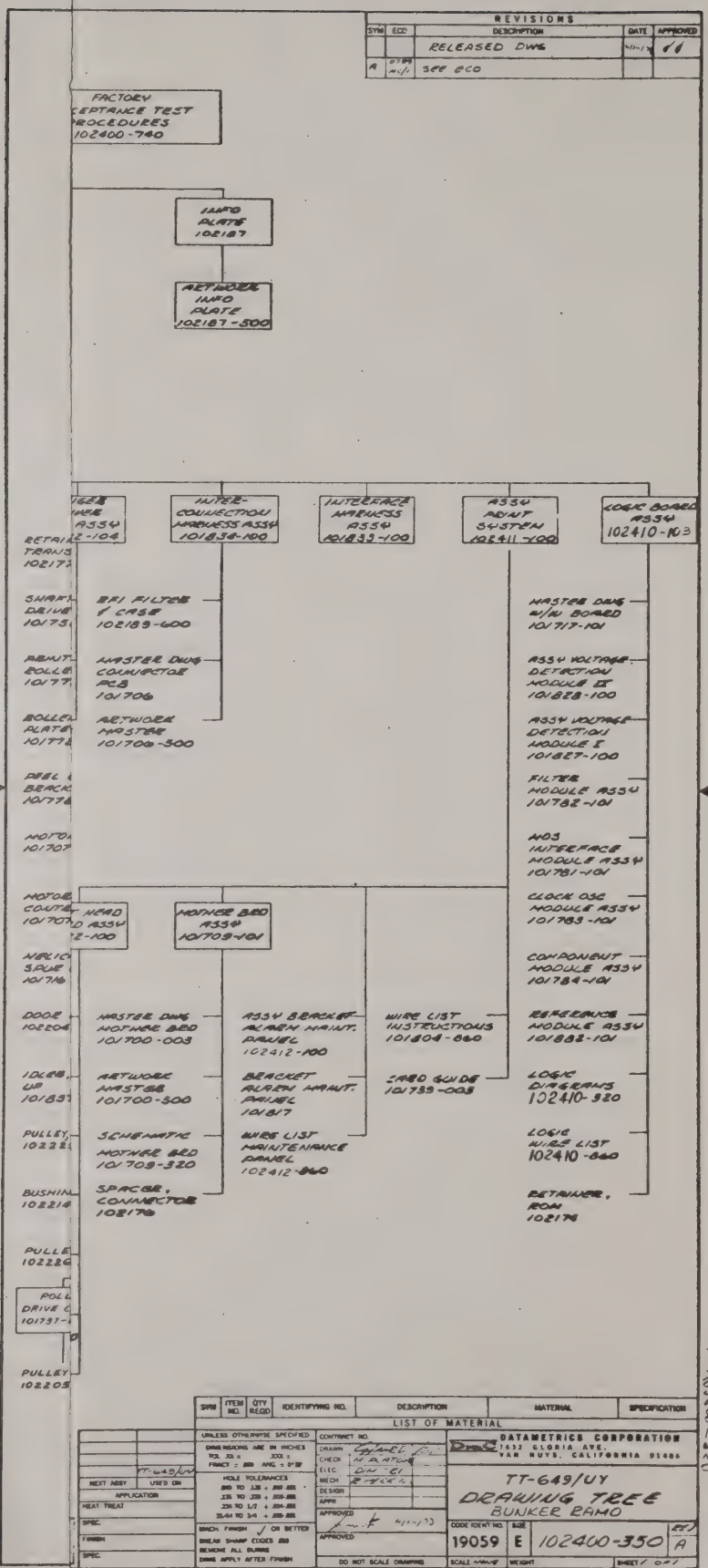
DATAMETRICS CORPORATION
7833 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

TT-649/UY
DRAWING TREE
BUNKER RAMO

CODE IDENT NO. 19059 | SIZE E | 102400-350 | REV A
SCALE NONE | WEIGHT | SHEET 1 OF 1

A B C D E F G H I J

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059




CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | RELEASED DWG | | |

PRINT HEAD 101722-100

402 LINES

MAINTENANCE PANEL 102412-100 SEE SCHEMATIC BELOW

CARD CAGE 101863-100

J5

101706 (CONNECTOR PCB)

P5

POWER SUPPLY 101810-101

J4

P4

J4 WINCHESTER XAC 20PF 1000

P4 WINCHESTER XAC 20 SM 2000

SPARES: T, U, V, S

115 VAC

LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN

MOTOR GND RETURN
MOTOR GND RETURN
MOTOR GND RETURN
MOTOR GND RETURN
MOTOR GND RETURN
MOTOR GND RETURN
+5 VOLTS
+5 VOLTS
+14 VOLTS

+50 VOLTS
+50 VOLTS
+50 VOLTS
+50 VOLTS
+50 VOLTS
-12 VOLTS
115 VAC
115 VAC
+5 VOLTS TO LAMPS
LAMP RETURNS
+14 VOLTS

ROTATING COMMON

COMMON CONTACT

TB1

STEPPER MOTOR 101707

Ø1 BRN MOTOR Ø1
Ø2 RED MOTOR Ø2
Ø3 ORG MOTOR Ø3
Ø4 YEL MOTOR Ø4
COM BLK MOTOR COMMON

(DRO)
COMMON DRIVE
COMMON DRIVE
(DRO)
115 VAC

DOOR SWITCH
S1C NO WHT
NCI WHT
BLK
MICRO-SWITCH MS 16106-4

ELAPSED TIME METER 101806-100
M1
115 VAC
AW HAYDEN MS17322-6

CB2 CIRCUIT BREAKER MS3901 3/1-47
CB1 CIRCUIT BREAKER MS3901 9/1-47
101808-100

PAPER ILLUMINATION 101755-100
DS4 DS5 DS6
LAMPS GE 330 14V.080MA

S1 POWER O3 O6
S2 ACK
S7 ENABLE DISABLE
S4 O 3 SELF TEST
S5 BRIGHT DIM OFF
5W 68Ω R1
GE 330 S3C
GE 330 S2C
GE 330 DS1
GE 377 DS2
SLEW ACK PWR OPR
S6 SOFT LOUD
R2 10K 1/4 W
S3 SLEW
CONTROL PANEL 102407-100

TB1

(ESS)
(STS)
+14 VOLTS
(OPL)
+5 VOLTS TO LAMPS
LAMP RETURNS
(PAD)
115 VAC

INDICATES A SINGLE CRIMP LUG (TYP WHERE SHOWN)

P24

MOTOR POWER (MPR)
LOGIC Ø1 (LØ1)
LOGIC Ø2 (LØ2)
LOGIC Ø3 (LØ3)
LOGIC Ø4 (LØ4)
SERIAL DATA OUT (BBREDS: SDO)
REGISTER CLOCK (ORC)
COMMON CONTROL (CCL)
FINGER CONTROL (FCL)
HEAD SHORT (HDS)
HEAD SHORT CLEAR (HSC)
GOOD PAPER (GDP)
SAMPLE PAPER (SAM)
LINE FEED DISABLE (LFD)

J24

P25

DOOR OPEN (DRO)
AUDIBLE ALARM RETURN
ESS, STS, PAD, DRO RETURN
DOOR OPEN (DRO)
SELF-TEST (STS)
ALARM ACKNOWLEDGE
OPERATE LAMP (OPL)
PAPER ADVANCE (PAD)
EMPHASIS ENABLE (ESS)

J25

LOGIC BOARD 102410-103

P22

+14 VOLTS
-12 VOLTS
+12 VOLTS
+12 VOLTS
+5 VOLTS
+5 VOLTS
+5 VOLTS
+5 VOLTS
+5 VOLTS
+50 VOLTS

J22

P23

LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN
LOGIC GND RETURN

J23

P20

DATA 2°
2° RETURN
DATA 2¹
2¹ RETURN
DATA 2²
2² RETURN
DATA 2³
2³ RETURN
DATA 2⁴
2⁴ RETURN
DATA 2⁵
2⁵ RETURN
DATA 2⁶
2⁶ RETURN
DATA 2⁷
2⁷ RETURN

J20

P21

DATA STROBE
DATA STROBE RETURN
DEMAND
DEMAND RETURN
SIGNAL COMMON (DC SIGNAL GROUND)
SIGNAL COMMON (DC SIGNAL GROUND)
ALARM ACKNOWLEDGE
READY
READY RETURN
AUDIBLE ALARM RETURN (NEGATIVE)
AUDIBLE ALARM (POSITIVE)
ALARM ACKNOWLEDGE RETURN

J21

J2 P2

I/O CONNECTOR
J2 - MS3120F20-41P
P2 - MS3126F20-41S

SPARE PINS: d, e, f, g, h, j, k, m, n, p, q, r, s.
(t UNUSED)

J1 P1

115 VAC 60-400 Hz
J1 - MS3100E22-2P
P1 - MS3106E22-2S

E1 E2 E3 RFI FILTER FL1 E4 E5

OUT CR/LF IN S8
J5-31
J5-3

MAINTENANCE PANEL SCHEMATIC

J5-33 OFF ACK DISABLE S5
J5-35
J5-17 ALARM ON DS3 SONALERT
J5-15

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .XXX ±
FRACT ± .015 ANG ± 0°30'
77-693/UV
NEXT ASSY USED ON
APPLICATION
HEAT TREAT
SPEC
FINISH
SPEC

CONTRACT NO.
DRAWN
CHECK G. Johnson 1-27-77
ELEC.
MECH
DESIGN
APPR.
APPROVED
APPROVED
MACH. FINISH √ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH
DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

SCHEMATIC, INTERCONNECTION

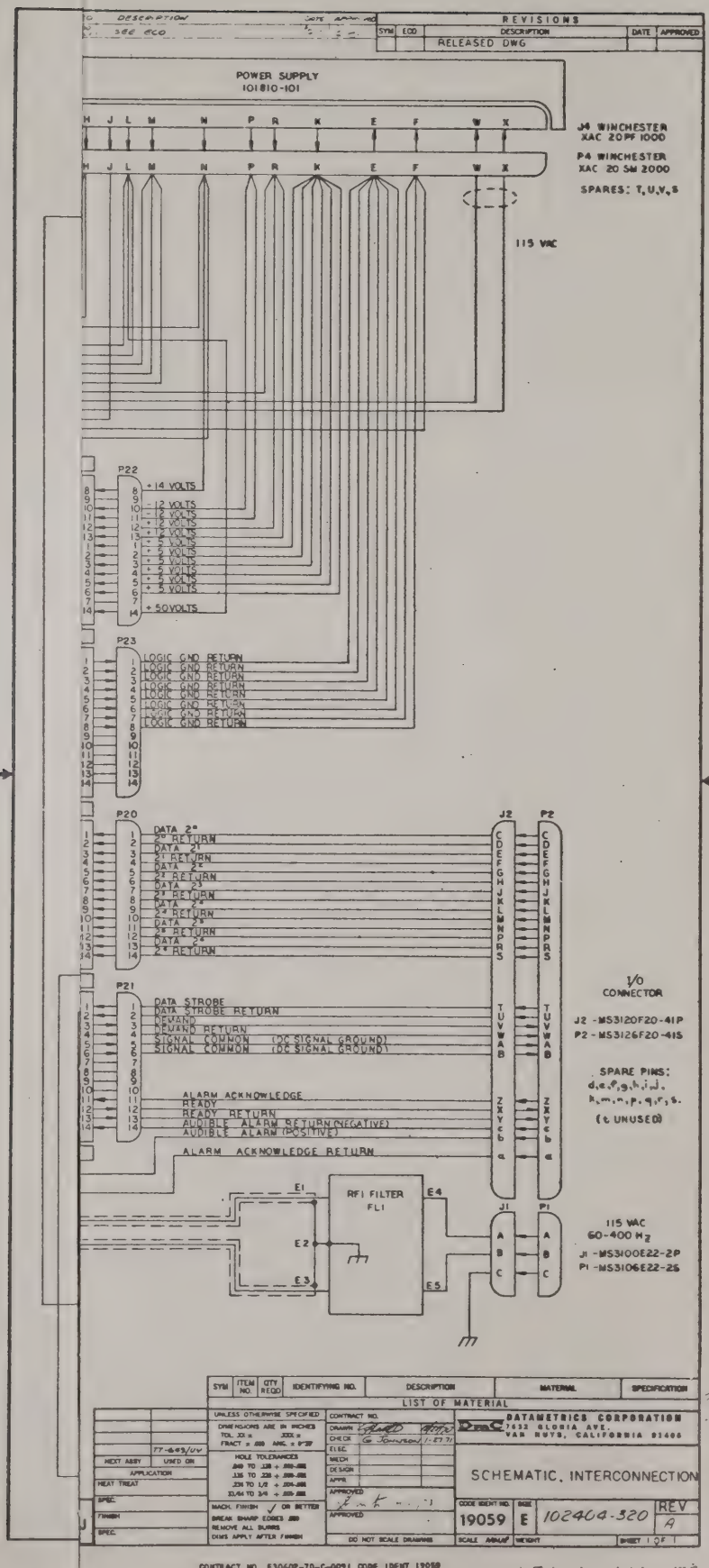
CODE IDENT NO. 19059 | SIZE E | 102404-320 | REV A

SCALE AS MARKED | WEIGHT | SHEET 1 OF 1

A B C D E F G H I J

SML. D 1.000 INTENDED USE CATEGORY

CONTRACT NO. F30602-76-C-0091 CODE IDENT 19059




| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL. XX ± .XXX ±
FRACT ± .030 ANG. ± 0°30'

77-603/UV

NEXT ASSY | USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

HOLE TOLERANCES
.000 TO .128 + .000-.002
.135 TO .228 + .000-.003
.234 TO 1/2 + .004-.003
33/64 TO 3/4 + .005-.003

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .030
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO.
DRAWN [illegible] 11-17-71
CHECK G. Johnson 11-17-71
ENGR.
MECH
DESIGN
APPR.
APPROVED
APPROVED
DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

SCHEMATIC, INTERCONNECTION

CODE IDENT NO. 19059 | SIZE E | 102404-320 | REV A
SCALE AS MARKED | WEIGHT | SHEET 1 OF 1

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED | |
| | | RELEASED DWG. | 4/24/73 | J.J. | |
| A | 08718 ref 8 | 3RE ECO | 4/24/73 | E.J. | |
| B | A-1 08716 | SEE ECO | 10/4/73 | [illegible] B | |

| SPARE GATES | | |
|---|---|---|
| TYPE | LOCATION | GATE OUTPUT PIN NO |
| SNXX00J | 95 | 11 |
| | | |
| | | |
| | | |
| SNXX20J | 12 | 8 |
| SNXX26J | 88 | 11 |
| SNXX26J | 88 | 11 |
| | | |
| SNXX73J | 93 | 8, 8 |
| SNXX74J | 56 | 8, 9 |
| | | |
| | | |
| | | |
| | | |
| | | |

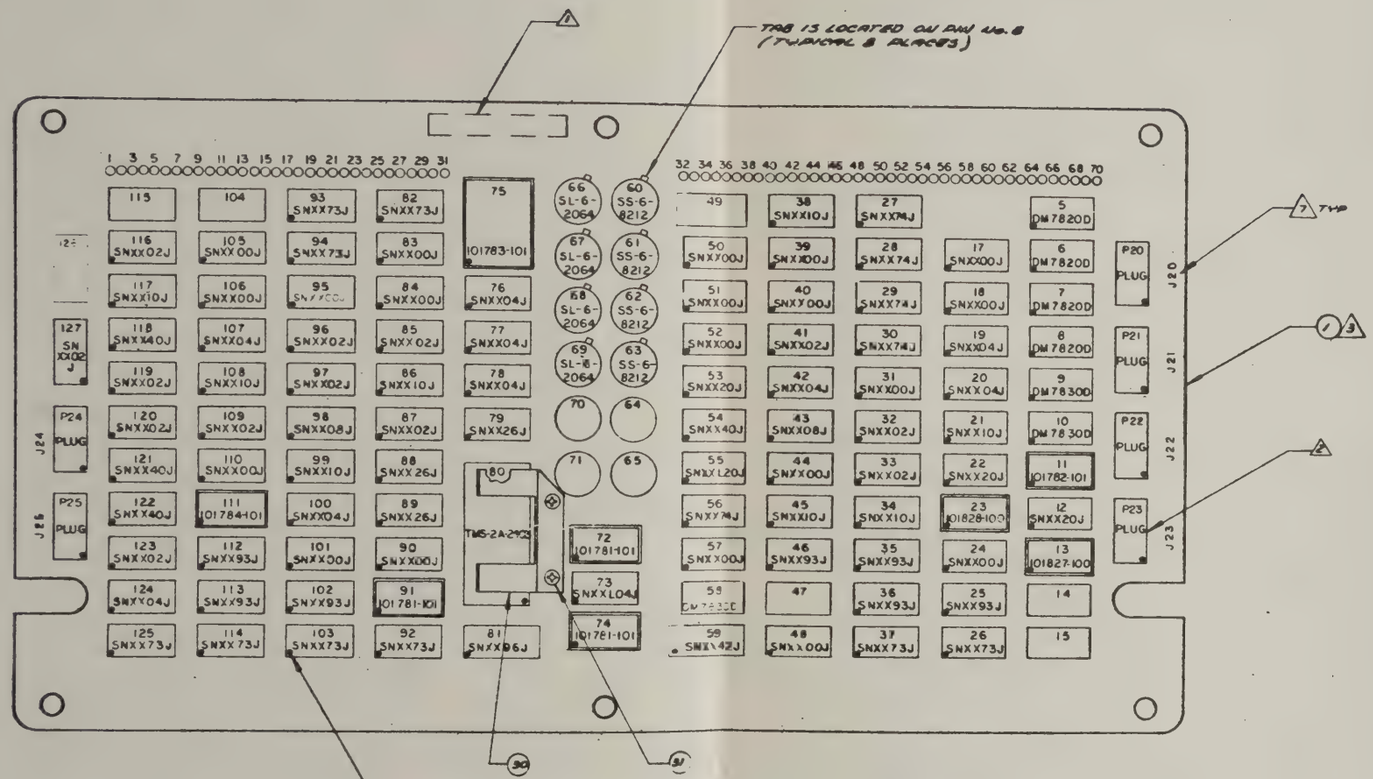



TABLE I

| 102410 | 905XXX | SERIES DESCRIPTION |
|---|---|---|
| -100 | -2XXX | DM78XXD SN54XXJ |
| -101 | -1XXX | DM78XXD SN74XXJ |
| -102 | -3XXX | DM78XXD/SN54XXJ/883 GROUP A SCREENING |
| -103 | -4XXX | DM78XXD/SN54XXJ/883 GROUP B SCREENING |
| -104 | -5XXX | DM78XXD/SN54XXJ/883 GROUP C SCREENING |

6 USE INTEGRATED CIRCUIT SERIES PER TABLE I.

7 MARK REF DESIGNATIONS J20 THRU J25 (BLACK) APPROX AS SHOWN, WIRE SIDE PER DMC PROCESS SPEC NO B3600.

6 SUGGESTED SOURCE OR ENGINEERING APPROVED EQUIVALENT.

5 INTEGRATED CIRCUIT REFERENCE DESIGNATIONS CORRESPOND TO CHIP LOCATION NUMBERS ON BOARD.

4. REFERENCE LOGIC DIAGRAM 102410-320 FOR BOARD INTERCONNECTION.

3. OPPOSITE SIDE OF BOARD IN VIEW SHOWN IS WIRE WRAPPED PER WIRE LIST 102410-860.

2 INDICATES WHERE INTERFACING PLUGS FROM HARNESS ASSEMBLIES ARE USED. (TYP WHERE SHOWN)

1 MARK PART NO. 19059 ASSY NO. 102410-10X ____; APPROX AS SHOWN, NEAR SIDE PER MIL-STD-130c. FILL BLANK WITH APPROPRIATE REV LETTER. PER DMC SPEC 893010.

NOTES: UNLESS OTHERWISE SPECIFIED.

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (i) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (ii) release to a foreign government, as the interest of the United States may require, provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 3 | 3 | 3 | 3 | 5 | 33 | | 805009-X001 | INTEGRATED CIRCUIT | SILICON | NATIONAL |
| 6 | 4 | 4 | 4 | 4 | 5 | 32 | | 805008-X001 | INTEGRATED CIRCUIT | SILICON | NATIONAL |
| | 2 | 2 | 2 | 2 | | 31 | | M351957-1 | SCREW, PAN HD | NO. 2-56 X.12 LG. | |
| | 1 | 1 | 1 | 1 | | 30 | | 102174 | ROM RETAINER | | |
| 3 | 500 FT | 500 FT | 500 FT | 500 FT | 500 FT | | 29 | | UL #1422-9 WIRE, 30AWG, WHT | UNDERWRITERS LAB | STYLE #1422 |
| | 1 | 1 | 1 | 1 | 1 | | 28 | | 101827-100 VOLTAGE DETECTION MODULE I, ASSY | | |
| | 1 | 1 | 1 | 1 | 1 | | 27 | | 101784-101 COMPONENT MODULE ASSY | | |
| | 1 | 1 | 1 | 1 | 1 | | 26 | | 101783-101 CLOCK OSCILLATOR MODULE, ASSY | | |
| | | | | | | | 25 | | | | |
| | 1 | 1 | 1 | 1 | 1 | | 24 | | 101828-100 VOLTAGE DETECTION MODULE II, ASSY | | |
| | 1 | 1 | 1 | 1 | 1 | | 23 | | 101782-101 FILTER MODULE, ASSY | | |
| | 3 | 3 | 3 | 3 | 3 | | 22 | | 101781-101 MOS INTERFACE MODULE, ASSY | | |
| | 4 | 4 | 4 | 4 | 4 | 5 | 21 | | 905011-0001 INTEGRATED CIRCUIT, MOS | | GEN INST |
| | 4 | 4 | 4 | 4 | 4 | | 20 | | 905010-0001 INTEGRATED CIRCUIT, MOS | | GEN INST |
| | | | | | | | 19 | | | | |
| | | | | | | | 18 | | | | |
| | 1 | 1 | 1 | 1 | 1 | | 17 | | TMS-2A-2403 INTEGRATED CIRCUIT, MOS-ROM | | TEXAS INST |
| 6 | 1 | 1 | 1 | 1 | 1 | | 16 | | 905046-X001 INTEGRATED CIRCUIT. | | |
| | 7 | 7 | 7 | 7 | 7 | | 15 | | 905045-X001 | | |
| | 5 | 5 | 5 | 5 | 5 | | 14 | | 905043-X002 | | |
| | 9 | 9 | 9 | 9 | 9 | | 13 | | 905043-X001 | | |
| | 1 | 1 | 1 | 1 | 1 | | 12 | | 905060-X001 | | |
| | 4 | 4 | 4 | 4 | 4 | | 11 | | 905041-X001 | | |
| | 3 | 3 | 3 | 3 | 3 | | 10 | | 905012-X007 | | |
| | 1 | 1 | 1 | 1 | 1 | | 9 | | 905012-X008 | | |
| | 3 | 3 | 3 | 3 | 3 | | 8 | | 905012-X004 | | |
| | 8 | 8 | 8 | 8 | 8 | | 7 | | 905012-X003 | | |
| | 2 | 2 | 2 | 2 | 2 | | 6 | | 905038-X001 | | |
| | 1 | 1 | 1 | 1 | 1 | | 5 | | 905036-X001 | | |
| | 9 | 9 | 9 | 9 | 9 | | 4 | | 905012-X002 | | |
| | 13 | 13 | 13 | 13 | 13 | | 3 | | 905033-X001 | | |
| 6 | 2 | 2 | 2 | 2 | 2 | 5 | 2 | | 905012-X001 INTEGRATED CIRCUIT | | TEXAS INST |
| | 1 | 1 | 1 | 1 | 1 | | 1 | | 101717-101 MASTER DWG LOGIC W/W BOARD | | |
| -104 | -103 | -102 | -101 | -100 | SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |

QTY REQD

LIST OF MATERIAL

| | | | | | |
|---|---|---|---|---|---|
| UNLESS OTHERWISE SPECIFIED | CONTRACT NO. | DATAMETRICS CORPORATION 7632 GLORIA AVE. VAN NUYS, CALIFORNIA 91406 | | | |
| DIMENSIONS ARE IN INCHES TOL. XX ± .005 FRACT ± .005 ANG. ± 0°30' | DRAWN [illegible] 4/24/73 | | | | |
| | CHECK G. Johnson 4/24/73 | LOGIC BOARD ASSY | | | |
| | ELEC | | | | |
| HOLE TOLERANCES .040 TO .128 +.002 -.000 .136 TO .228 +.003 -.000 .234 TO 1/8 +.004 -.000 3/16 TO 3/4 +.005 -.000 | MECH | | | | |
| | DESIGN G. Johnson 4/24/73 | | | | |
| | APPD | | | | |
| MACH. FINISH √ OR BETTER BREAK SHARP EDGES .010 REMOVE ALL BURRS DIMS APPLY AFTER FINISH | APPROVED [illegible] 4/24/73 | CODE IDENT NO. 19059 | SIZE E | 102410 | REV. B |
| | APPROVED | | | | |
| DO NOT SCALE DRAWING | SCALE 2/1 | WEIGHT | | SHEET 1 OF 1 | |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| XX±.00 | XXX±.005 | TT-C49/UV | | | | | | | | | |
| NEXT ASSY | USED ON | | | | | | | | | | |
| APPLICATION | | | | | | | | | | | |
| HEAT TREAT | | | | | | | | | | | |
| SPEC | | | | | | | | | | | |
| FINISH | | | | | | | | | | | |
| SPEC | | | | | | | | | | | |

A B C D E F G H I J

ANY CHANGE AFFECTS SIDE CATEGORY

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| EFF | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED DWG. | 4/24/72 | J.J. |
| | A | 0873 INC 2 | SEE ECO | 4/24/72 | E.J. |
| | B | A-11 0870 | SEE ECO | 10/4/72 | [illegible] |

## SPARE GATES

| TYPE | LOCATION | GATE OUTPUT PIN NO |
|---|---|---|
| 5NXX00J | 95 | 11 |
| | | |
| | | |
| | | |
| 5NXX20J | 12 | 8 |
| 5NXX26J | 88 | 11 |
| 5NXX27J | 88 | 11 |
| | | |
| 5NXX73J | 93 | 6,8 |
| 5NXX74J | 56 | 8,8 |
| | | |
| | | |
| | | |
| | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| - | 3 | 3 | 3 | 3 | 3 | 5 | 33 | 805009-X001 | INTEGRATED CIRCUIT | SILICON | NATIONAL |
| 4 | 4 | 4 | 4 | 4 | 4 | 5 | 32 | 905008-X001 | INTEGRATED CIRCUIT | SILICON | NATIONAL |
| 2 | 2 | 2 | 2 | 2 | | | 31 | MS51557-1 | SCREW, PAN HD | NO. 2-56 X .12 LG. | |
| . | 1 | 1 | 1 | 1 | | | 30 | 102174 | ROM RETAINER | | |
| 500 FT | 500 FT | 500 FT | 500 FT | 500 FT | | | 29 | UL #1422-9 | WIRE, 30 AWG, WHT | UNDERWRITERS LAB | STYLE #1422 |
| 1 | 1 | 1 | 1 | 1 | | | 28 | 101827-100 | VOLTAGE DETECTION MODULE I, ASSY | | |
| 1 | 1 | 1 | 1 | 1 | | | 27 | 101784-101 | COMPONENT MODULE ASSY | | |
| 1 | 1 | 1 | 1 | 1 | | | 26 | 101783-101 | CLOCK OSCILLATOR MODULE, ASSY | | |
| | | | | | | | 25 | | | | |
| 1 | 1 | 1 | 1 | 1 | | | 24 | 101828-100 | VOLTAGE DETECTION MODULE II, ASSY | | |
| 1 | 1 | 1 | 1 | 1 | | | 23 | 101782-101 | FILTER MODULE, ASSY | | |
| 3 | 3 | 3 | 3 | 3 | | | 22 | 101781-101 | MOS INTERFACE MODULE, ASSY | | |
| 4 | 4 | 4 | 4 | 4 | | 5 | 21 | 905011-0001 | INTEGRATED CIRCUIT, MOS | | GEN INST |
| 4 | 4 | 4 | 4 | 4 | | | 20 | 905010-0001 | INTEGRATED CIRCUIT, MOS | | GEN INST |
| | | | | | | | 19 | | | | |
| | | | | | | | 18 | | | | |
| 1 | 1 | 1 | 1 | 1 | | | 17 | TMS-2A-2403 | INTEGRATED CIRCUIT, MOS-ROM | | TEXAS INST |
| 1 | 1 | 1 | 1 | 1 | | | 16 | 905046-X001 | INTEGRATED CIRCUIT. | | |
| 7 | 7 | 7 | 7 | 7 | | | 15 | 905045-X001 | | | |
| 5 | 5 | 5 | 5 | 5 | | | 14 | 905043-X002 | | | |
| 9 | 9 | 9 | 9 | 9 | | | 13 | 905043-X001 | | | |
| 1 | 1 | 1 | 1 | 1 | | | 12 | 905060-X001 | | | |
| 4 | 4 | 4 | 4 | 4 | | | 11 | 905041-X001 | | | |
| 3 | 3 | 3 | 3 | 3 | | | 10 | 905012-X007 | | | |
| 1 | 1 | 1 | 1 | 1 | | | 9 | 905012-X008 | | | |
| 3 | 3 | 3 | 3 | 3 | | | 8 | 905012-X004 | | | |
| 8 | 8 | 8 | 8 | 8 | | | 7 | 905012-X003 | | | |
| 2 | 2 | 2 | 2 | 2 | | | 6 | 905038-X001 | | | |
| 1 | 1 | 1 | 1 | 1 | | | 5 | 905036-X001 | | | |
| 9 | 9 | 9 | 9 | 9 | | | 4 | 905012-X002 | | | |
| 13 | 13 | 13 | 13 | 13 | | | 3 | 905033-X001 | | | |
| 2 | 2 | 2 | 2 | 2 | | 5 | 2 | 905012-X001 | INTEGRATED CIRCUIT | | TEXAS INST |
| 1 | 1 | 1 | 1 | 1 | | | 1 | 101717-101 | MASTER DWG. LOGIC W/W BOARD | | |
| -H04 | -H03 | -H02 | -H01 | -H00 | SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
| QTY REQD | | | | | | | | LIST OF MATERIAL | | | |

5. USE
6. MA
7. SU
8. INT
9. QU
10. MA
11. INC
12. MA
13. FIL
14. RE
15. NOTE

| | | | |
|---|---|---|---|
| 102400-100 | TT-469/UV | | |
| NEXT ASSY | USED ON | | |
| APPLICATION | | | |
| HEAT TREAT | | | |
| SPEC. | | | |
| FINISH | | | |
| SPEC. | | | |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .XXX ±
FRACT ± .015 ANG. ± 1°30'
HOLE TOLERANCES
.008 TO .128 +.002-.000
.129 TO .338 +.003-.000
.339 TO 1/2 +.004-.000
33/64 TO 3/4 +.005-.000
MACH. FINISH √ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH

CONTRACT NO.
DRAWN [illegible] 4/24/72
CHECK G. Johnson 4/24/72
ELEC.
MECH
DESIGN G. Johnson 4/24/72
APPR
APPROVED [illegible] 4/24/72
APPROVED
DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

# LOGIC BOARD ASSY

| CODE IDENT NO. | SIZE | | REV. |
|---|---|---|---|
| 19059 | E | 102410 | B |
| SCALE 2/1 | WEIGHT | | SHEET 1 OF 1 |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| GPP | SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | | | RELEASED LWG | 4/10/72 | |
| | A | per ECO | SEE ECO | 8/5/72 | |
| | B | per ECO | SEE ECO | 10/4/72 | |

J1 J20 J21

DATA 2⁰ / 2⁰ RETURN
DATA 2¹ / 2¹ RETURN
DATA 2² / 2² RETURN
DATA 2³ / 2³ RETURN
DATA 2⁴ / 2⁴ RETURN
DATA 2⁵ / 2⁵ RETURN
DATA 2⁶ / 2⁶ RETURN
DATA STROBE
DATA STROBE RETURN
SIG. GROUND
SIG. GROUND
READY
RDY. RETURN
AUDIBLE ALARM RETURN
DEMAND RETURN
DEMAND

LINE RECEIVERS
LINE DRIVER
LINE DRIVER
9 7830
10 7830
TP64

SO
SI
SO+S1
PRC
PRA(SO+S1)
PRT
SFT
LFF
FF5
FF6
LFF FF6
FF5+LFF FF6
FF6 LFF+FF5
+5V

STL
CLI
PRI
SFT
(STL CLI PRI SFT)
TP61
DAS
(DATA STROBE)

PRA
PRI
OPL
OPERATE LAMP
SYR
(SYSTEM READY RELAY)
BT7
BT6 BT5
BT4
BT3 BT2 BTI
(BT7 BT6 BT5 BT4 PRA)
TP56
IDS
(INPUT DATA STROBE)
BT3 BT2 BTI
TP57
LFI
BT3 BT2 BTI
TP58
FFC
BT3 BT2 BTI
TP59
SO
BT3 BT2 BTI
TP60
SI

LFI = BT7 BT6 BT5 BT4 BT3 BT2 BTI PRA
FFC = BT7 BT6 BT5 BT4 BT3 BT2 BTI PRA
SO = BT7 BT6 BT5 BT4 BT3 BT2 BTI PRA
SI = BT7 BT6 BT5 BT4 BT3 BT2 BTI PRA

7493 B INPUT 25 — ST1 ST2 ST3 ST4
7493 B INPUT 36 — ST5 ST6 ST7
7493 A INPUT — CLEAR — SFT

BIT 1 … BIT 7
BT 1 … BT 7
TP47 TP48 TP49 TP50 TP51 TP52 TP53

READY
READY RETURN
SYR
FROM (DOOR OPEN SWITCH)
DAO
VDR
NDS
PAD
PWR
(PAD PWR)
R1 2.2K
R2 2.2K
R3 2.2K
R4 100K
CR1 JAN IN 4148
C1 6.8μF
STS
(SELF TEST SWITCH)
(STS LFF SFT)
TP62 STL
TP63 SFT
TP46 PWR

EES
(EMPHASIS ENABLE SWITCH)
TP44 PRB
PRB
PRA
TP43
TP45 PRC
(PRINTER READY INTERNAL)
PRT + PAD + FF6 + LFF + PRB + PRA = PRI
TP55 PRI
TP54 (BT6) BT8 PAD FF6
ESS PWR
SO
SI
BT1

1. ALL VCC & GND CONNECTIONS TO INTEGRATED CIRCUITS: PIN 7 - GND; PIN 14 - VCC
2. ALL SN7400 TYPE INTEGRATED CIRCUITS: PIN 11 - GND; PIN 4 - VCC
3. FOR USE WITH LOGIC WIRE LIST 101837-860 REVISION B.

NOTES: UNLESS OTHERWISE SPECIFIED

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (1) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (11) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

LIST OF MATERIAL

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .005
FRACT ± .015 ANG. ± 0°30'
HOLE TOLERANCES
.010 TO .128 ± .003-.005
.135 TO .234 ± .003-.006
.234 TO 1/4 ± .004-.008
33/64 TO 3/4 ± .004-.010
MACH. FINISH √ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DYES APPLY AFTER FINISH
DO NOT SCALE DRAWING

CONTRACT NO.
DRAWN
CHECK
ENG.
MECH.
DESIGN
APPR.
APPROVED 4/11/72
APPROVED

102410-100 TT-649/UV
NEXT ASSY USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

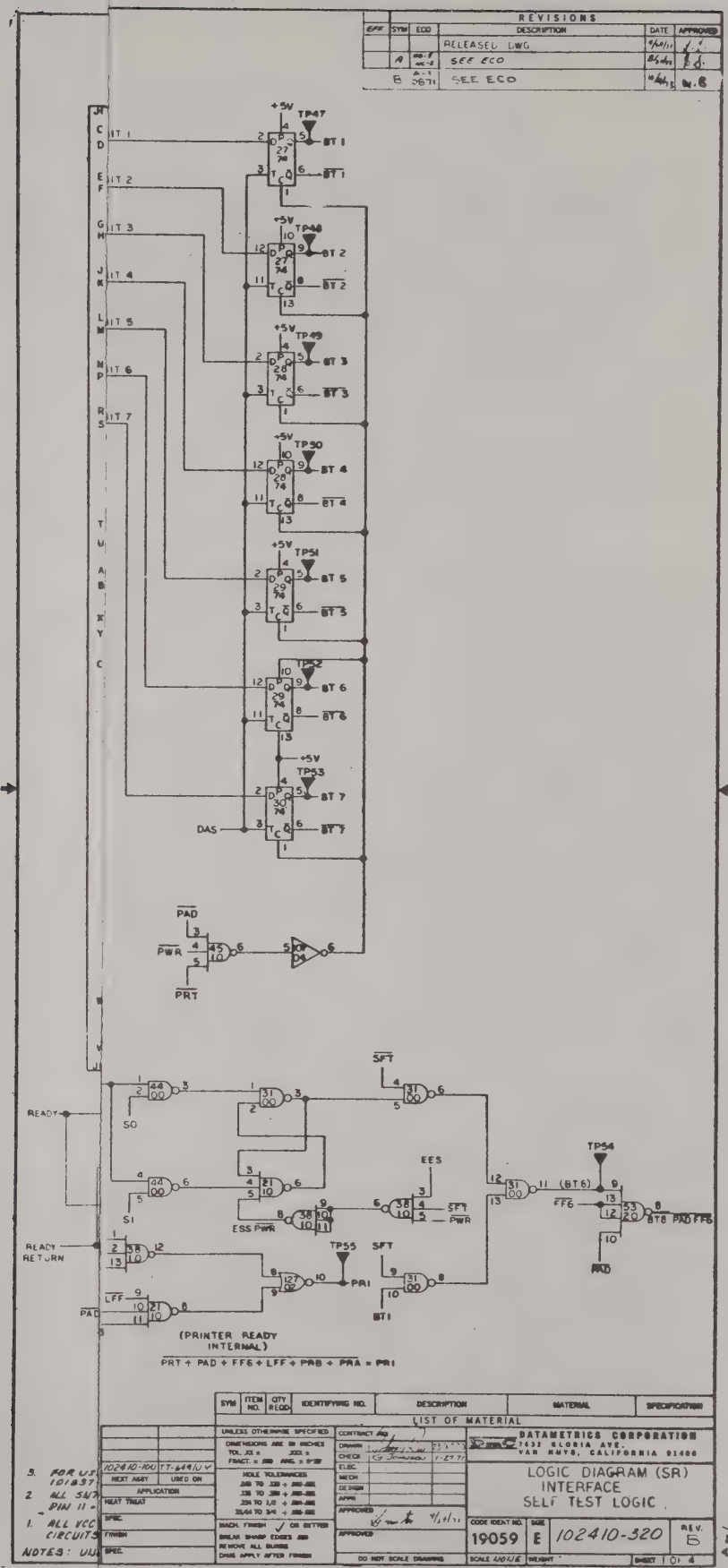
DATAMETRICS CORPORATION
7433 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

LOGIC DIAGRAM (SR)
INTERFACE
SELF TEST LOGIC

CODE IDENT NO. 19059 | SIZE E | 102410-320 | REV. G
SCALE NONE | WEIGHT | SHEET 10 4

A B C D E F G H I J
NO Q.I.O. INTENDED USE CATEGORY

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059




CONTRACT NO. F30602-78-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | A | SEE SHEET 1 | | |

BT 1
BT 2
BT 3
BT 4
BT 5
BT 6
BT 7
BIT 8 PAD FF6

16 BIT REGISTER SS-6-8212 (60, 61, 62, 63) 16 BIT REGISTER
64 BIT REGISTER SL-6-2064 (66, 67, 68, 69) 64 BIT REGISTER
+5V −12V URØ

TP35 TP36 TP37 TP38 TP39 TP41 TP42 TP40

ED9 PWR

TP23 TP26 TP27 TP28 TP29
ED0 ED1 ED2 ED3 ED4

BCD TO DECIMAL DECODER 7442 59
E1 E2 E3 E4 +5V GND VCC

ED0 (SPACE)
(ROW 1)
ED2 (ROW 2)
ED3 (ROW 3)
ED4 (ROW 4)
ED5 (ROW 5)
ED6 (ROW 6)
ED7 (ROW 7)
ED9 (UNDERLINE)
ED10 (IDLE NO SPACE)
FIRST LINE SCAN → ED11 (NORMALIZE & SPACE)

TP30 TP31 TP32 TP33 TP34
ED5 ED6 ED7 ED8 ED9

+12V
74 101781 -10C
R6 2.2K R5 2.2K R4 2.2K
E1 E2 E3

ROW SELECT
INPUT
OUTPUT
ENA VSS VGG VDD
+12V −12V

RØ READ ONLY MEMORY TMS-2A-2403 TEXAS INSTRUMENTS BØ

74 101781 -100
R3 2.2K R2 2.2K R1 2.2K R7 2.2K R6 2.2K
72 101781 -100
91 101781 -100 R6 2.2K R5 2.2K R4 2.2K R3 2.2K R2 2.2K R1 2.2K
91 101781 -100 R7 2.2K

(7̄6+DIA)
DIA

(7̄8)
(7̄6)
(7̄6+76)
(75421)
(7̄6+7̄6+75421)
(7̄6+7̄6+75421)(7654321)=DIA
(DIA ED4)
(7654321)=EOT
(EOT ED7)
(DIA ED4)+(EOT ED7)
(ED3+ED5)
DIA(ED3+ED5)
(ED4+ED7)
EOT(ED4+ED7)
DIA(ED3+ED5)+EOT(ED4+ED7)
(ED2+ED6)
DIA(ED2+ED6)
DIA(ED3+ED5)+EOT(ED4+ED7)
(DIA ED4+EOT)
(54)
(54321)
(21)
(421)
(75)

(BBR ED9)
ED9
(BBR ED9+SDO)
TP-24
+5V

COLUMN
ROW
E D C B A
DIAMOND = ●
EOT = ⊗

SERIAL IN
STROBE
5 BIT SHIFT REGISTER
7496 81
DOT SERIAL OUT
(SDO)
(SERIAL DATA OUT)
CLEAR
CLOCK
ED9
ORC

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (i) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (ii) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED — DIMENSIONS ARE IN INCHES — TOL. .XX ± .010 .XXX ± .005 FRACT. ± .015 ANG. ± 0°30'

NEXT ASSY | USED ON | APPLICATION | HEAT TREAT | SPEC. | FINISH | BASIL

CONTRACT NO.

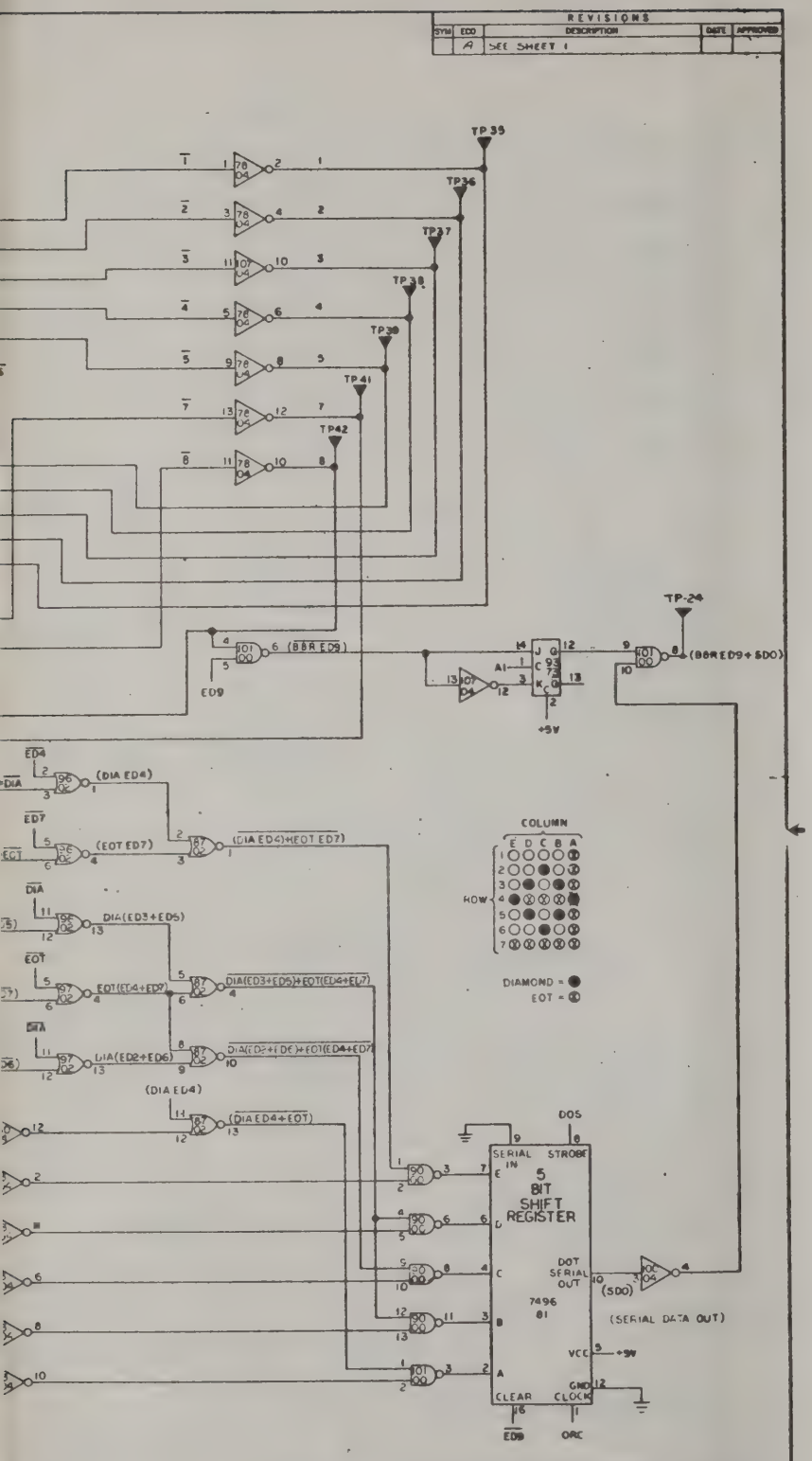
DATAMETRICS CORPORATION
7633 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

LOGIC DIAGRAM (SR)
SHIFT REGISTER, READ-ONLY-MEMORY LOGIC

| SIZE | DWG. NO. | REV. |
|---|---|---|
| E | 102410-320 | 8 |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

SCALE: NONE | WEIGHT | SHEET 2 OF 4




| SYM | ITEM NO | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED — CONTRACT NO.

DIMENSIONS ARE IN INCHES
TOL .XX ± .010 .XXX ± .005
FRACT ± 1/64 ANG. ± 0°30'

HOLE TOLERANCES
.000 TO .029 + .002 -.000
.030 TO .059 + .003 -.000
.060 TO 1/8 + .004 -.000
9/64 TO 3/4 + 1/64 -.000

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
PLATING APPLY AFTER FINISH

NEXT ASSY | USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

LOGIC DIAGRAM (SR)
SHIFT REGISTER,
READ-ONLY-MEMORY LOGIC

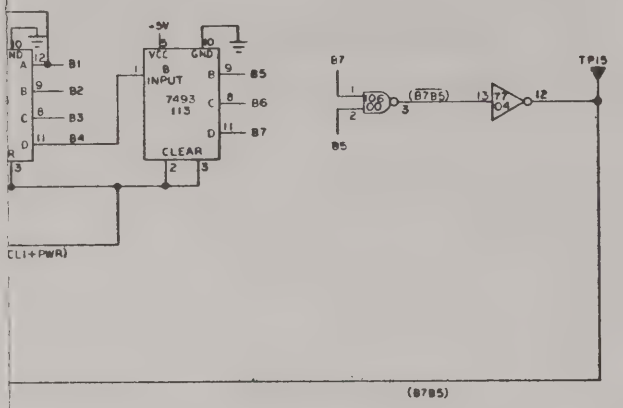
ORDER NO. 19059 | SIZE E | 102410-320 | REV. B

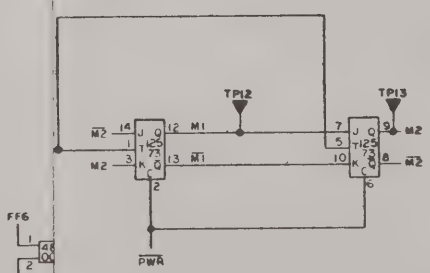
ENGINEER | WEIGHT | SHEET 2 OF 4

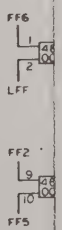
D E F G H I J

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | A | SEE SHEET 1 | | |




| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .010 .XXX ± .030
FRACT ± .030 ANG ± 0°30'

HOLE TOLERANCES
.060 TO .128 +.003 -.000
.129 TO .228 +.003 -.004
.229 TO 1/2 +.004 -.000
13/64 TO 3/4 +.005 .000

MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .005
REMOVE ALL BURRS
DIMS. APPLY AFTER FINISH

DO NOT SCALE DRAWING

CONTRACT NO.
DRAWN
CHECK
ELEC.
WELDM
DESIGN
APPR
APPROVED
APPROVED

NEXT ASSY | USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

DATAMETRICS CORPORATION
7432 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

# LOGIC DIAGRAM (SR) COUNTER CHAIN LOGIC

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | E | 102410-320 | B |
| SCALE NONE | WEIGHT | | SHEET 3 OF 4 |

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| | A | SEE SHEET 1 | | |

BASIC 4.6 MHz CLOCK OSC.

R1 2.2K
C1 10PF
C2 10PF
R2 2.2K
XTAL 4.6 MHz
75 101783 -100

+5V
TP19
CL2
TP18
CL1
A2
A1
TP17
IDS
A2+IDS
B1
B2
B3
B4
B5
B6
B7
TP15
(B7B5)
(HDS DRO PRT)
PWR

E4
E1
E2
TP16
(E4E2E1)
(E4E2E1CL2)
CL2
LFF
(E4E2E1CL2) LFF
TP20
TP21
TP22
TP23
E1
E2
E3
E4
(E4E2E1CL2)LFF+E4E2E1DS
ED$
GDP
240pf
(E4E3+GDPED$)
(E4E3)

D1
D2
D3
D4
D5
TP14
(E4E2E1)

FF1
FF2
FF3
FF4
FF5
FF6
(FF6LFF)
(FFC+FF6LFF)
FFC
(FF2FF5)
TP11
CL1

M1=@1
M1=@3
M2=@2
M2=@4
(PRT+M2)M1
L@1
(PRT+M1)M2
L@2
(PRT+M2)M1
L@3
(PRT+M1)M2
L@4

TP12
TP13
D4D5

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of Datametrics Corporation, except for: (i) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (ii) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED — CONTRACT NO.
DIMENSIONS ARE IN INCHES
TOL. .XX ± .010 .XXX ± .005
FRACT ± .030 ANG. ± 0°30'
HOLE TOLERANCES
.000 TO .125 + .001 -.000
.126 TO .250 + .002 -.000
.251 TO 1.0 + .004 -.000
1.01 TO 3.0 + .005 -.000
MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS. APPLY AFTER FINISH
NEXT ASS'Y — USED ON — APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.
DRAWN
CHECK
ENG.
MFGR
DESIGN
APPR.
APPROVED
APPROVED
DO NOT SCALE DRAWING

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

LOGIC DIAGRAM (SR)
COUNTER CHAIN LOGIC

CODE IDENT NO. 19059 | SIZE E | 102410-320 | REV B
SCALE WOLF | WEIGHT | SHEET 3 OF 4

A B C D E F G H I J
MIL D 100 - INTENDED USE CATEGORY

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| A | | SEE SHEET 1 | | |

(COMMON CONTROL)

(HDS DRO PRT X E4 ED9 + D5 + D1 D2 D3 D4 D5 + DOD)

(HDS DRO PRT)

(MOTOR POWER)

(LINE FEED DISABLE)

(PAPER ADVANCE SWITCH)

PAD + LFI + STL + FF6

(HEAD SHORT CLEAR)

SIGNAL COMMON

(B7B5)

(PAD + LFI + STL + FF6 + B7B5 LFD + SFT) = LFG

(LINE FEED GENERATE)

(A2 D1 D2 D3 D4 D5)

(IDS + A2 D1 D2 D3 D4 D5)

(IDS + A2 D1 D2 D3 D4 D5 + PWR)

(LFD + SFT)

B7B5 (LFD + SFT)

(E4 ED9 + SDO)

(SAMPLE PAPER)

(D1 D2)

(D3 D4 D5)

(DOD CL2)

(CL1 A1 A2)

(DOD CL2 CL1 A1 A2)

(OUTPUT REGISTER CLOCK)

(DOT STROBE)

(E4 E2 E1)

(PRINT) PRT

(VOLTAGE DETECTION)

| J24 | | |
|---|---|---|
| MPR | 1 | P5-9 |
| LØ1 | 2 | P5-10 |
| LØ2 | 3 | P5-20 |
| LØ3 | 4 | P5-38 |
| LØ4 | 5 | P5-44 |
| (EN6ED9+SDO) | 6 | P5-22 |
| ORC | 7 | P5-24 |
| CCL | 8 | P5-16 |
| FCL | 9 | P5-34 |
| HDS | 10 | P5-41 |
| HCS | 11 | P5-40 |
| GDP | 12 | P5-43 |
| SAM | 13 | P5-11 |
| LFD | 14 | P5-31 |

| J25 | | |
|---|---|---|
| SYR | 1 | P5-23 |
| | 2 | P5-21 |
| | 3 | P5-19 |
| LRC | 4 | TB1-26 |
| SH.RET.(ORC) | 5 | |
| AUDIBLE ALARM RETURN | 6 | P5-17 |
| EES.STS.PAD.DRO.RETURN | 7 | TB1-10 |
| DRO | 8 | TB1-8 |
| | 9 | |
| STS | 10 | TB1-19 |
| | 11 | |
| OPL | 12 | TB1-13 |
| PAD | 13 | TB1-7 |
| ESS | 14 | TB1-27 |

| J22 | | |
|---|---|---|
| | 1 | P4-K |
| | 2 | P4-K |
| | 3 | P4-K |
| | 4 | P4-K |
| +5V | 5 | P4-K |
| | 6 | P4-K |
| | 7 | |
| +14V | 8 | P4-N |
| | 9 | |
| -12V | 10 | P4-P |
| | 11 | P4-P |
| +12V | 12 | P4-R |
| | 13 | P4-R |
| +45V | 14 | P4-L |

"Furnished under United States Government Contract No. F30602-70-C-0091 shall not be either released outside the Government or used, duplicated, or disclosed whole or in part for manufacture or procurement, without the written permission of DaLametrics Corporation, except for: (1) emergency repair or overhaul work by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work; or (11) release to a foreign government, as the interest of the United States may require; provided that in either case the release, use, duplication or disclosure hereof shall be subject to the foregoing limitations. This legend shall be marked on any reproduction hereof in whole or in part."

| SYM | ITEM NO. | QTY REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL .XX ± .01 ANG. ± 0°30'
FRACT. ± 1/64
HOLE TOLERANCES
.060 TO .128 + .003 -.000
.136 TO .386 + .005 -.000
.234 TO 1/2 + .004 -.000
33/64 TO 3/4 + .005 -.000
MACH. FINISH √ OR BETTER
BREAK SHARP EDGES AND REMOVE ALL BURRS
DRAG APPLY AFTER FINISH
DO NOT SCALE DRAWING

CONTRACT NO.
DRAWN
CHECK
ELEC.
MECH.
DESIGN
APPR.
APPROVED
APPROVED

NEXT ASSY | USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

DATAMETRICS CORPORATION
7632 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

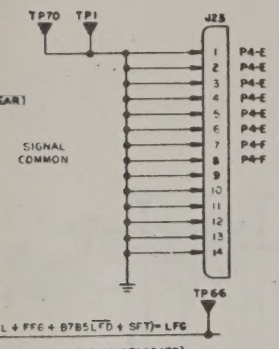
# LOGIC DIAGRAM (SR) CONTROL LOGIC

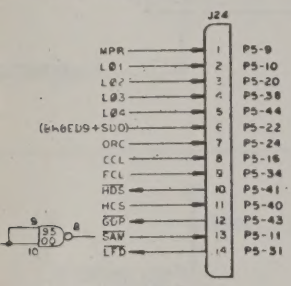
CODE IDENT NO. 19059 | SIZE E | 102410-320 | REV E
SCALE NONE | WEIGHT | SHEET 4 OF 4

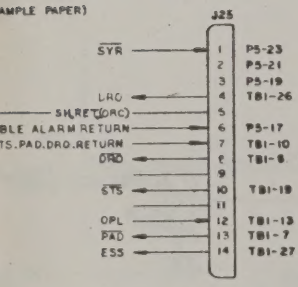
A B C D E F G H I J
MIL-D-1000 INTENDED USE CATEGORY

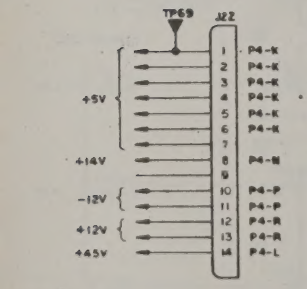
CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

| REVISIONS | | | | |
|---|---|---|---|---|
| SYM | ECO | DESCRIPTION | DATE | APPROVED |
| A | | SEE SHEET 1 | | |




| SYM | ITEM NO. | QTY. REQD | IDENTIFYING NO. | DESCRIPTION | MATERIAL | SPECIFICATION |
|---|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL. .XX ± .01
.FRACT. ± 1/64 ANG. ± 0°30'
HOLE TOLERANCES
.060 TO .128 +.002-.000
.130 TO .328 +.003-.000
.330 TO 1/2 +.004-.000
13/64 TO 3/4 +.005-.000
MACH. FINISH ✓ OR BETTER
BREAK SHARP EDGES .010
REMOVE ALL BURRS
DIMS APPLY AFTER FINISH
DO NOT SCALE DRAWING

CONTRACT NO.
DRAWN
CHECK
ELEC.
MECH
DESIGN
APPR.
APPROVED

DATAMETRICS CORPORATION
7633 GLORIA AVE.
VAN NUYS, CALIFORNIA 91406

LOGIC DIAGRAM (SR)
CONTROL LOGIC

| CODE IDENT NO. | SIZE | | REV |
|---|---|---|---|
| 19059 | E | 102410-320 | E |
| SCALE 4/1 1/2 | WEIGHT | | SHEET 4 OF 4 |

NEXT ASSY | USED ON
APPLICATION
HEAT TREAT
SPEC.
FINISH
SPEC.

D E F G H I J
DO NOT USE

CONTRACT NO. F30602-70-C-0091 CODE IDENT 19059

1098-1-320 A-4